City of Birmingham
A Walkable Community

MEMORANDUM

City Clerk's Office

DATE: **July 22, 2015**

TO: **Joseph A. Valentine, City Manager**

FROM: **Laura M. Pierce, City Clerk**

SUBJECT: **Greenwood Cemetery Rules and Regulations, Fee Schedule, Sale of Grave Spaces**

The Greenwood Cemetery Advisory Board (GCAB) was established in October, 2014. It was charged with the following duties:

A. To provide recommendations to the City Commission: Section 34-30 (g)
   1. Modifications: As to modifications of the rules and regulations governing Greenwood Cemetery.
   2. Capital Improvements: As to what capital improvements should be made to the cemetery.
   3. Future Demands: As to how to respond to future demands for cemetery services.

B. The Board may call upon the City Manager for such services and data from the various departments as it may require. The GCAB may recommend to the City Commission the securing of such professional and consulting services as it may require, however, the GCAB shall not have any authority to authorize or otherwise obligate the City to incur expenses and/or approve contracts. Requests for expenditures shall be routed through the ex-officio member(s) of the GCAB to the City Commission for consideration. Section 34-30 (h)

C. Day to Day Administration: The day to day administration of the cemetery shall be under the direction and control of the City, through the City Manager or his/her designee. Section 34-30 (g) (4)

In following the recommendations from the Greenwood Cemetery Advisory Committee (GCAC), the GCAB meetings have included discussions on space availability, ground penetrating radar, and the rules and regulations.

SPACE AVAILABILITY

The demand for graves in Greenwood Cemetery is quite high. Currently there are 146 individuals listed on the "Grave Interest List" who are interested in purchasing graves in the Cemetery. As a result, the GCAC reviewed alternatives to locate additional burial space in the Cemetery such as reclamation or utilizing the roadway between section K & L.

The reclamation process is lengthy and would take a minimum of seven years before any graves would become available. The GCAC recommended against using the existing roadway to create additional burial space due to sensitivities by the current grave owners.

After careful review of the Cemetery grounds, the City contractor identified several areas which could be used for burials, specifically Sections B, C, D, K, L, and O, where there is green space between lots that was never used or sold for burials. The contractor identified 530 potential grave spaces.

Section	Number of Graves
B*	408
C*	72
D	8
K	16
L	16
O	10
TOTAL	530

(*There would be some areas excluded due to existing trees and shrubs.)

The Board thoroughly discussed whether this green space should be used for additional burials. Since Greenwood Cemetery is designated as a historic district, the Board recommended the Historic District Commission (HDC) review whether the green space could be used for additional burials and whether there were any limitations that would prohibit or be impacted by such action.

After careful consideration and discussion, the HDC provided several suggestions should the City decide to move forward with the proposal. The comments of the HDC were as follows:

- That the HDC extends its appreciation that they have been given the opportunity to comment on this plan and is supportive with the following suggestions;
- No existing headstones or grave sites are moved;
- No existing trees or mature landscaping is removed;
- Flush mounted headstones are used for all newly created grave sites so as not to provide any visual disruption;
- The structural integrity of all of the historic markers and the landscape is maintained;
- Contractors that do work in the cemetery must be bonded and insured to ensure that if any damage is done the cost to repair is covered; and
- The HDC hopes to have the opportunity to continue with reviews of the cemetery.

Although no formal approval or recommendation is required for projects on City property, the HDC was appreciative of the opportunity to comment on the proposal and were supportive of the plan due to the sensitivity shown to the historic elements of the cemetery and the potential for a revenue stream to provide for the long term care and preservation of the property.

The GCAB discussed the HDC comments and approved the following motion on a 5-1 vote with one member absent:

To recommend that the City offer the graves located in the green space of Sections B, C, K, L, and O for sale, with the following conditions:

1. *No existing headstones or grave sites are moved;*
2. *No existing trees or mature landscaping is removed;*
3. *Flush mounted headstones are used for all newly created grave sites so as not to*

provide any visual disruption;

4. *The structural integrity of all of the historic markers and the landscape is maintained;*
5. *Contractors that do work in the cemetery must be bonded and insured to ensure that if any damage is done the cost to repair is covered; and fixing any damage that may occur;*
6. *Advertise the opportunity for people that have space in the cemetery; and work with families that have lots adjoining green space so that they are aware of the opportunity as well.*
7. *Pending the results of Ground Penetrating Radar.*

GROUND PENETRATING RADAR

The GCAB then discussed the use of Ground Penetrating Radar (GPR), whether it should be done and if so, the entire cemetery or only the green space. The Board recommended staff obtain quotes for the GPR. Preliminary proposals were obtained from three companies and ranged from $7,800 - $36,000 for the entire cemetery and $3,900 - $19,500 for only the green space.

GPR has the capability of detecting metallic and non-metallic objects such as concrete, wood, and bones. It provides a cross-sectional view of objects embedded within the subsurface. The non-metallic items are not always distinguishable from the surrounding materials. GPR signal response is dependent on the burial material type as well as soil type, subsurface debris, and other sources of radio frequency noise. Soil and surface conditions will limit the effectiveness of GPR.

One company pointed out that actual bodies are very close in properties to the soil and do not generally appear very clear. The readings would come from the air pocket within an intact coffin or the burial vaults. Older burials, before 1940, can be difficult to see as the coffins may be collapsed and the air pocket is no longer present. This company also noted that older burials have an increased likelihood of being undetectable to the GPR.

One company also used an electromagnetic survey technique which detects buried metal which will locate items such as metal lined caskets, steel reinforced concrete vaults, casket handles, or other metallic grave goods most commonly used in burials within the past fifty years.

The GCAB approved the following motion by a 4-0 vote with three members absent:

To recommend that the City Commission authorize a Request for Proposal be issued for Ground Penetrating Radar services for both the entire cemetery and also only sections B, C, K, L, and O.

Since that time, the contractor offered to have the GPR service done on the green space in these Sections. The contractor has recently completed this service and is awaiting the final report. This service was paid for by the contractor at no cost to the City.

RULES AND REGULATIONS

In the final report of the Greenwood Cemetery Advisory Committee, the Committee recommended that the City Commission review the Greenwood Cemetery Operational

Procedures, Conditions and Regulations to ensure they are fully inclusive (Recommendation #7).

The GCAB reviewed and discussed the Rules and Regulations. A summary of the proposed revisions is provided for your information:

- Section numbers were added to allow for easy reference throughout the document.

- References to "him" were changed to "him or her" and references to the "City" added "or its designated contractor".

- Section VI Monuments, Grave Markers, and Foundations:
    - Separated markers from the monuments section.
    - Added a section for flush markers only in the newly plotted areas. This provision would only affect graves sold after January 1, 2015. (as recommended by the GCAB sale of green space)

- Section VII Funerals, Interments, and Disinterments
    - Under the Disinterment section, added that the permit for a disinterment must be made by a licensed funeral director as required by Oakland County.

- Section VIII Burial Rights Policy
    - The Burial Rights Policy has been added to clarify the type of burials allowed per grave. It is anticipated that the City will be able to offer graves for cremation burials only. Therefore "Cremation Grave" details have been included.

- Section IX Lot Resale Policy
    - The Lot Resale Policy will limit the transfer of a grave, purchased from the City after October 1, 2014, to a related third party or the grave must be returned to the City for 50% of the purchase price. Individuals will only be allowed to transfer the graves to family with proper documentation. This was recommended by the GCAC (Recommendation #4).

FEE SCHEDULE

In reviewing the City's files, the contractor was able to identify 82 grave spaces that were never sold for burials. Over half of these grave spaces could be sold for cremation burials only. Therefore, staff is recommending a change to the Fee Schedule to accommodate grave spaces only able to accommodate cremation burials.

Section	Number of Graves	Full/Cremation
E	1	Full
	20	Cremation
G	10	Full
	16	Cremation
H	1	Full
	20	Cremation
O	14	Full
TOTAL	82	

The fees for graves accommodating cremation burials was initially placed in the Fee Schedule in 2010, but was subsequently removed in 2012 in an effort to consolidate the Fee Schedule as the City had no graves to sell and was unaware of any graves spaces to accommodate such burials.

CITY CLERKS OFFICE (PROPOSED AMENDMENT TO FEE SCHEDULE)

Section	Existing Fee	Proposed Fee	Change Code
Greenwood Cemetery (126-26			
Grave space accommodating one full burial or three cremations	$3,000.00		
Additional Rights of Burial for cremated remains, each	$750.00		
Grave space accommodating two cremated remains		$2,000.00	New Fee
Grave space accommodating one cremated remains		$1,000.00	New Fee

CONCLUSION

The GCAC recommendation #11 states that "The Committee recommends that any sales occurring as the result of the reclamation process initially be offered to those currently on the Interest List according to the date their name was added to the List and thereafter offered to the general public."

If both the Rules and Regulations and Fee Schedule are approved, the City and Contractor will begin the process to sell the graves by contacting individuals on the Grave Interest List. Letters would be sent by first class mail to the first twenty individuals on the Interest List. The City and Contractor would then schedule appointments with the individuals to purchase graves. Letters would then be sent to the next twenty individuals on the Interest List and so on. Limiting the number of letters sent to twenty at a time will prevent a mass flood of individuals scheduling appointments and allow those who have been on the Interest List longer the ability to choose first. Individuals not on the Interest List who wish to purchase graves can register their name on the list by logging on to www.bhamgov.org/cemetery.

The following schedule is offered below to clarify the process.

1	GCAB recommendation to the City Commission	June 19, 2015
2	Staff to present the GCAB recommendation to the City Commission	July 13, 2015
3	If approved by City Commission, begin sending letters sent to the individuals on the Interest List to schedule appointments to purchase graves.	July 14, 2015
4	Appointments scheduled with individuals on the Interest List who are interested in purchasing graves. Individuals can register to be on the Interest List by logging on to www.bhamgov.org/cemetery. Click on the link "add your name to the Interest List".	July 14, 2015 - ongoing

Some members of the GCAB questioned if there is a limitation on the number of graves a family or individual could purchase. The proposed Rules and Regulations restricts the resale of the new graves back to the City for 50% of the purchase prices. However, there is no regulation limiting the number of graves a family or individual could purchase. Approximately 530 grave spaces have been identified in the green space, plus the additional 82 grave spaces identified

from the City records. Staff feels that this is sufficient space to accommodate everyone on the list.

While writing this report and reviewing the resolutions made by the GCAB, it was noticed that the eight spaces from Section D were inadvertently excluded from the GCAB resolutions. When the contractor initially presented the suggestion to the GCAB to utilize the green space for additional graves, it included Sections B, C, D, K, L, O. The GCAB meetings included general discussions on the use of the green space and never explicitly removed Section D from the list. Because it was never specifically removed from the list by the GCAB, Section D should be included. Therefore, the suggested resolution for the City Commission includes those grave spaces in Section D.

The Historic District Commission review of Greenwood Cemetery has been included with the background material for your reference.

SUGGESTED RESOLUTION:

To amend the Greenwood Cemetery Operational Procedures, Conditions and Regulations as recommended.

-and-

To amend the Schedule of Fees, Charges, Bonds and Insurance, Greenwood Cemetery to add a fee for the sale of grave spaces accommodating one or two cremated remains.

- and –

To follow the proposed schedule to sell the new grave spaces in Sections B, C, D, K, L, O and newly identified grave spaces in Sections E, G, H, and O.

CITY OF BIRMINGHAM
GREENWOOD CEMETERY OPERATIONAL PROCEDURES, CONDITIONS AND REGULATIONS

I. DEFINITIONS:

The following words and phrases, ~~when used, the following sections shall,~~ for the purposes of these sections, have the meanings respectively ascribed to them, except in those instances where the context clearly indicates a different meaning.

a. "Cemetery" shall mean Greenwood Cemetery.

b. "Superintendent" shall mean the City Manager or his/her designee.

c. "Marker" shall mean a stone or object denoting the location of a grave and which does not exceed eighteen (18) inches in height, sixteen (16) inches in width, and twenty-four (24) inches in length.

d. "Monument" shall denote a memorial stone or object of a size in excess of that of a marker.

e. "Permanent outside container" shall be a container which encloses a casket. The following are considered permanent outside containers: concrete boxes, concrete, copper or steel burial vaults.

f. "Department" shall mean the Department of Public Services.

g. "Memorial" shall mean monuments or markers.

II. CONDUCT OF PERSONS

Every person entering the cemetery shall be responsible for any damage caused by such person while within the cemetery. No person under eighteen years of age shall enter the cemetery grounds unless accompanied by an adult responsible for his/her conduct, or unless permission has been granted by the Superintendent.

No person shall:

a. Enter the cemetery except through an established gate, and only during the hours from 8:00 A.M. to sundown.

b. Deposit or leave rubbish and debris on any part of the cemetery grounds.

c. Pick, mutilate, remove, or destroy any living plants or parts thereof, whether wild or domestic, on the cemetery grounds, except in the work of maintenance by City employees or its designated contractor.

d. Break, injure, remove, or deface any monument or marker on the cemetery grounds.

e. Bring any dog or animal into the cemetery grounds,~~ except by permission of the Superintendent.~~ unless in compliance with applicable leash law.

f. Bring or discharge any firearm on the cemetery grounds, except in the conduct of military funerals.

g. Carry ~~any refreshments or~~ intoxicants into the cemetery grounds, or consume such while in the cemetery.

h. ~~Use any form of advertising~~ Advertise on cemetery grounds unless permitted by the City.

i. Conduct her/himself in any other than a quiet and respectful manner while on the cemetery grounds.

III. TRAFFIC REGULATIONS

All traffic laws of the City of Birmingham that are applicable to the operation of vehicles in cemeteries shall be strictly observed. Every person driving a vehicle into the cemetery shall be responsible for any damage caused by such vehicle.

No person shall:

a. Drive a vehicle within the cemetery at a speed in excess of ten (10) miles per hour.

b. Drive or park a vehicle on other than established driveways except for the purpose of maintenance or construction.

c. Turn a vehicle around within the cemetery except by following established driveways.

d. Use a cemetery driveway as a public thoroughfare.

IV. MAINTENANCE AND PERPETUAL CARE

The City and/or its designated Contractor shall be responsible for the maintenance and repair of the driveways, buildings, water system, drainage and fences. The City and/or its designated Contractor shall also cut and maintain the grass areas, ~~rake~~ remove the leaves, trim and remove trees and shrubs, apply fertilizer as necessary, and in general maintain the cemetery as a place of natural beauty devoted to the burial of the dead.

The City and/or its designated Contractor shall not be responsible for any special care of any particular section, lot or burial space or for the maintenance or repair of any monument, marker or planting placed by the owner. Further, the City and/or its designated Contractor shall not contract or agree to give special care to any section, lot or burial space except as above provided. The City shall maintain the integrity of damaged historical markers, prior to January 1, 1875, through the perpetual care fund.

V. OPERATIONAL REGULATIONS

The following operational regulations shall apply to all areas within the cemetery:

a. Corners of all lots will be marked by the City, or its designated contractor, with permanent markers set flush with the ground surface, and these shall not be disturbed.

b. The erection of any fence, railing, wall, coping, curbing, trellis, or embankment, or the planting of any hedge, on any lot or grave is prohibited. No cutting of paths shall be permitted.

c. The City, or its designated contractor, shall have the right to remove from any lot any objects, including trees and shrubs and flower pots, that, ~~in the opinion of the Superintendent are injurious to~~ are not in keeping with the appearance of the cemetery.

d. Ironwork, seats, vases, and ~~urns~~ planters shall be allowed on lots, providing that the same shall be kept in good repair and well painted. If not kept in good repair and painted, the Superintendent shall have power and authority to remove same from cemetery, and shall not be liable for any such removal.

e. ~~Urns~~ Planters of iron or granite for the planting of flowers will be removed from lots and put in storage if not filled by July 1st. ~~Urns~~ Planters so removed will be sold for cartage and storage charges, or destroyed, if not claimed within a period of one year.

f. No person shall plant, cut down, remove, or trim any tree, shrub, or plant within the cemetery except by permission of the Superintendent, or a person authorized by him/her to act in his/her stead in matters pertaining to the cemetery.

g. The planting of flowers on any lot, or otherwise disturbing the sod, shall release the City or its designated contractor from all obligation to resod without extra charge therefore. The planting of spirea, rose bushes, peonies, or shrubs that grow over three feet in height, will not be permitted.

h. As soon as flowers, floral pieces, potted plants, ~~artificial flowers,~~ flags, emblems, etc., used at funerals or placed on grave at other times, become unsightly or faded, they will be removed, and no responsibility for their protection will be

assumed, except for special groups upon notification to the City or its designated contractor.

i. The Superintendent reserves the right to remove from beds, graves, vases, ~~urns~~ planters, or other containers, all flowers, potted plants, or other decorations, that are set out and then not kept properly watered, trimmed and free from weeds, and to do so as soon as they become objectionable.

VI. MONUMENTS, GRAVE MARKERS AND FOUNDATIONS

MONUMENTS

Monuments will be permitted only on ~~lots having 90 or more square feet of area under one ownership~~ two adjoining side by side graves under one ownership. No more than one monument shall be erected on any lot.

The erection of all monuments ~~and markers~~ shall be subject to the following conditions:

a. Each monument ~~or marker~~ shall be supported on a concrete foundation not smaller than the base of the monument ~~or marker~~ it supports ~~and not less than forty-two (42) inches deep below the ground surface~~. Such foundation shall be constructed only by the City or its designated contractor after payment therefore has been made. Foundations will be ~~poured~~ installed April to November, weather dependent, as determined by the Superintendent. Requests received after November 1st will be held until conditions allow for installation.

b ~~c~~. Designs for monuments ~~or markers~~ must be submitted to the Superintendent or to a person designated by him/her to act in his/her stead, when application is made for construction of foundations. A form with the size, material and design must be submitted to the City or its designated contractor for approval and all installation fees must be paid in full prior to delivery of the memorial.

c ~~d~~. No monument ~~or marker~~ of artificial stone, sandstone, limestone, or soapstone will be permitted.

d ~~f~~. All contractors and ~~workmen~~ workers engaged in setting monuments shall be under the supervision of the Superintendent or a person designated by him/her, and they will be held responsible for any damage resulting from their negligence or carelessness. No work of setting monuments ~~or markers~~ shall be started that cannot be completed by the end of the day following the start of such work.

e. No monuments shall be allowed in the flush sections.

MARKERS

a ~~b.~~ Markers shall not exceed 1 ½ feet in height and shall have a minimum horizontal dimension at the base of not less than half of the height. All markers shall be in

one piece, and shall be dressed on the bottom at right angles to the vertical axis. These measurements do not apply to government issue markers.

b. Individual markers can be sod set without a concrete foundation.

c. A form with the size, material and design must be submitted to the City or its designated contractor for approval and all installation fees must be paid in full prior to delivery of the memorial. Installation will not occur between November 1st and March 31st unless weather permits.

FLUSH MEMORIAL SECTION - F-NORTH ONLY

a. No structures shall be placed or constructed by anyone other than employees of the City or its designated contractor ~~Department of Public Services~~ in the area of Greenwood Cemetery designated as the "Flush Memorial Section".

b. Bronze or granite markers only, set flush with the turf, will be permitted in this section. No structures which would extend above the ground level shall be permitted.

c. A form with the size, material and design must be submitted to the City or its designated contractor for approval and all installation fees must be paid in full prior to delivery of the memorial. Installation will not occur between November 1st and March 31st unless weather permits.

FLUSH MEMORIAL SECTION – AREAS PLOTTED AFTER JANUARY 1, 2015

a. On grave spaces in Sections B, C, K, L, and O, all memorials on new lots plotted after January 1, 2015, must be installed at lawn level. Memorials can be individual markers measuring 24" x 12" x 4" or 16" x 24" x 4" or companion memorials over two (2) graves measuring 48" x 12" x 4".

b. The memorials must be made of acceptable bronze or granite material and set at lawn level.

c. A form with the size, material and design must be submitted to the City or its designated contractor for approval and all installation fees must be paid in full prior to delivery of the memorial. Installation will not occur between November 1st and March 31st unless weather permits.

VII. FUNERALS, ~~AND~~ INTERMENTS AND DISINTERMENTS

INTERMENTS

No lot or burial space shall be used for any purpose other than the interment of human remains and the erection of appropriate memorials to the dead.

No interment shall be made in Greenwood Cemetery until a proper burial permit has been issued, and until all other legally required permits have been issued by, and filed with, the proper authorities.

~~Department~~ City personnel, or its designated contractor, will provide opening and closing of grave, initial and periodic maintenance only, and will not be responsible for handling and lowering vaults or caskets. Tents, lowering devices and other materials shall be furnished by the funeral director or vault company.

No grave shall be dug closer than six (6) inches from the line of any lot.

In all full burial interments, the casket shall be enclosed in a permanent outside container~~.~~ ~~and~~ Such outside container shall be installed by the funeral director, vault company, or the City's designated contractor.

In all interments of cremated remains, the container shall be installed by the City, its designated contractor, funeral director or vault company. The size of the container must be submitted with the request for burial.

All funerals within the cemetery shall be under the supervision of the City or its designated contractor ~~Department~~. No burials are to be made on Sunday or legal holidays, except by permission of the Superintendent. Overtime charges will apply.

The ~~Department~~ City must be notified through the City Clerk or its designated contractor, of the time and exact location of proposed interments in time to allow not less than ten (10) hours of daylight to prepare the grave. If notification occurs less than 10 hours of daylight prior to burial, overtime charges will apply.

Interments that involve preparation or follow-up work during other than regular working hours will be done at an additional charge for the overtime portion of the time required. The maximum charge shall not exceed the normal charges plus the weekend/holiday fee. ~~When it is necessary to prepare for an interment or disinterment (location, opening and/or closing), an overtime charge will apply.~~ This fee is in addition to the normal interment or disinterment fee charged during regular working hours.

Interments of the remains of any persons other than the owner or an immediate member of his/her family will be permitted only after the written consent of the owner or the owner's authorized agent has been filed with the City Clerk or the City's designated contractor. In case of a minor being the owner, the guardian may give consent upon proof of this authority to act.

Only one (1) interment in any one grave space shall be permitted, except in the case of a parent and infant child, two (2) children dying at about the same time, or in such other unusual cases as it shall seem to the Superintendent to be proper under the circumstances. Such interments shall adhere to Section VIII Burial Rights Policy.

Up to two cremated remains may be placed in the same space if the owner of the grave space or his/her heirs purchase the right to such inurnments. Should the owner permit the burial of such cremated remains, only one additional memorial shall be permitted on the grave space and such memorial shall not be larger than 24 x 12 x 4 inches and installed at lawn level. Up to three (3) cremated remains (only) may be placed on a single grave space.

DISINTERMENTS

~~Disinterment of a full burial shall not be made without first obtaining a permit for the removal from the local health officer of Oakland County by a licensed funeral director. Such request for removal is to be made upon such forms as may be provided, and shall include such information as may be required, by the local health officer.~~

Disinterment of a burial shall be facilitated by a Michigan licensed funeral director. Said funeral director shall obtain a permit for such removal from the local health officer of Oakland County. Said funeral director shall complete the removal form as required by the City or its designated contractor. Disinterment shall not commence until after issuance of the Oakland County permit is presented to the City or its designated contractor, approval for removal is granted by the City or its designated contractor, and all applicable fees are paid. Such disinterments shall only be scheduled between June 15th and October 15th each year unless approved by the City. The grave space where the disinterment occurred shall immediately be returned to a safe condition.

VIII. BURIAL RIGHTS POLICY

Lots purchased from the City after October 1, 2014:

- Full grave
  - One casketed remains and two cremated remains
  - \- or -
  - Up to three cremated remains
- Cremation grave
  - 3 x 2 feet one cremated remains
  - 3 x 4 feet two cremated remains

Lots purchased prior to October 1, 2014:

- Full grave
  - One burial right per grave (To add a burial right for cremated remains, must purchase each additional right of burial in the grave. Up to two cremated remains.)
  - \- or -
  - One cremated remains (To add a burial right for cremated remains, must purchase each additional right of burial in the grave. Up to two cremated remains.)

IX. LOT RESALE POLICY

All graves sold by the City after October 1, 2014 can only be returned to the City. Such graves cannot be transferred from the original purchaser to an unrelated third party. Graves can only be transferred to family according to the Rules of Consanguinity with supporting genealogical documentation.

All graves returned to the City shall receive 50% of the original purchase price from the Greenwood Cemetery Perpetual Care Fund. Upon return of the graves, the City may resell the graves.

X. SCHEDULE OF FEES AND CHARGES

Fees and other charges are as set forth in the ~~City Code~~ Schedule of Fees, Charges, Bonds and Insurance.

XI. REVISIONS

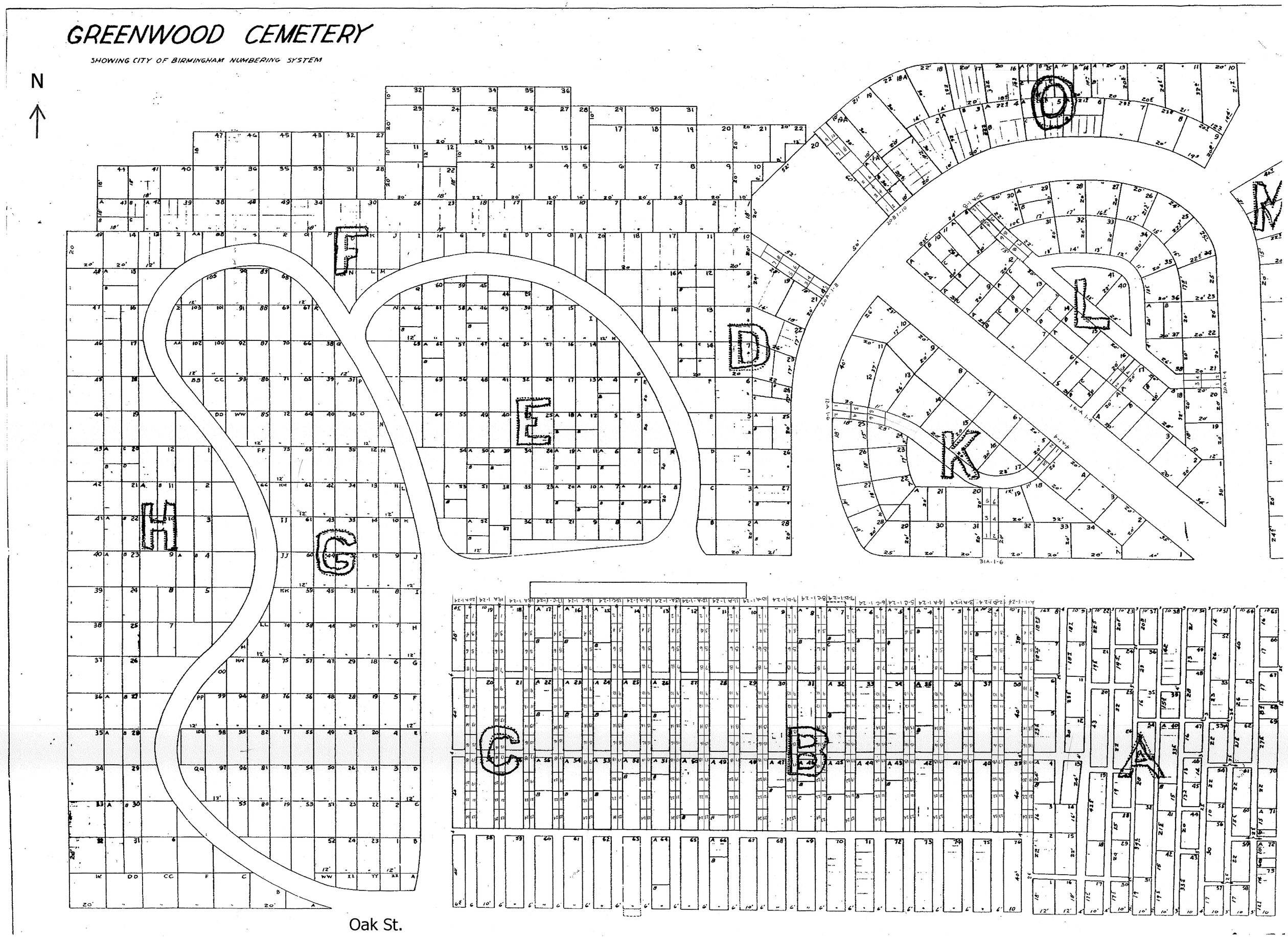
The obligations of the City as herein set forth may, from time to time, be modified by the Birmingham City Commission.

- Adopted by the Birmingham City Commission October 18, 1971 Resolution No. 1434-71.
- Adopted by the Birmingham City Commission February 13, 1984 Resolution No. 02-97-84.
- Adopted by the Birmingham City Commission February 23, 2009 Resolution No. 02-52-09.
- Adopted by the Birmingham City Commission December 17, 2012 Resolution No. 12-356-12

Greenwood Cemetery (126-26)

Grave space accommodating one full burial or three cremations	$ 3,000.00
Additional Rights of Burial for cremated remains, each	$ 750.00
Administrative fee for transfer of grave ownership	$ 150.00
Interment and disinterment fees:	
Cremation	$ 750.00
Full Burial	$ 1,200.00
Foundation charges for markers & monuments:	
Foundation Installment - per linear foot	$ 125.00
Marker or monument resets:	
Foundation installation charge as per above schedule, plus an hourly charge for removal of old foundation	
Weekend, holiday, and overtime interments. This fee in addition to the normal interment fee charged during regular working hours.	$ 400.00

MAP OF GREENWOOD CEMETERY

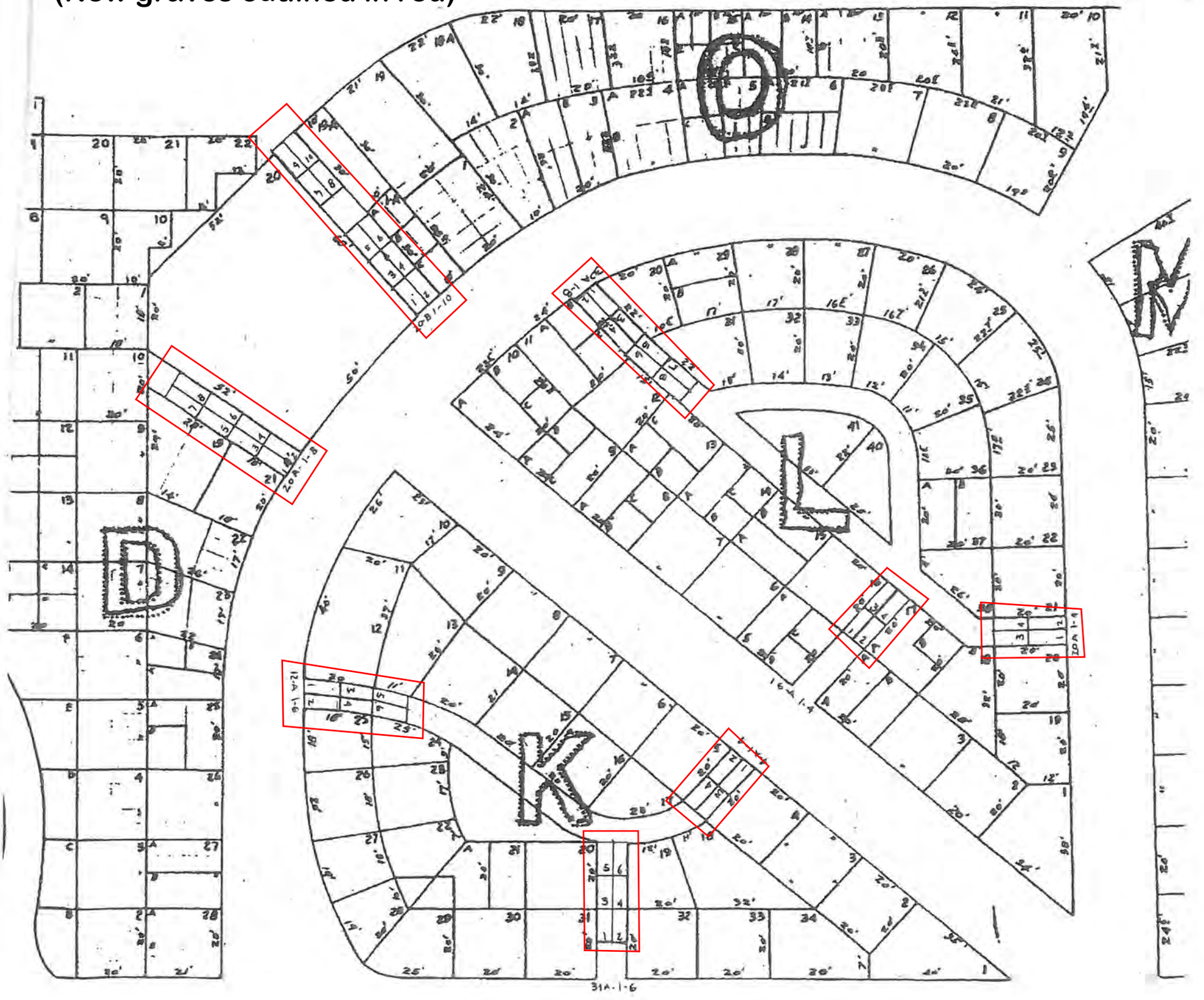


SECTIONS B & C

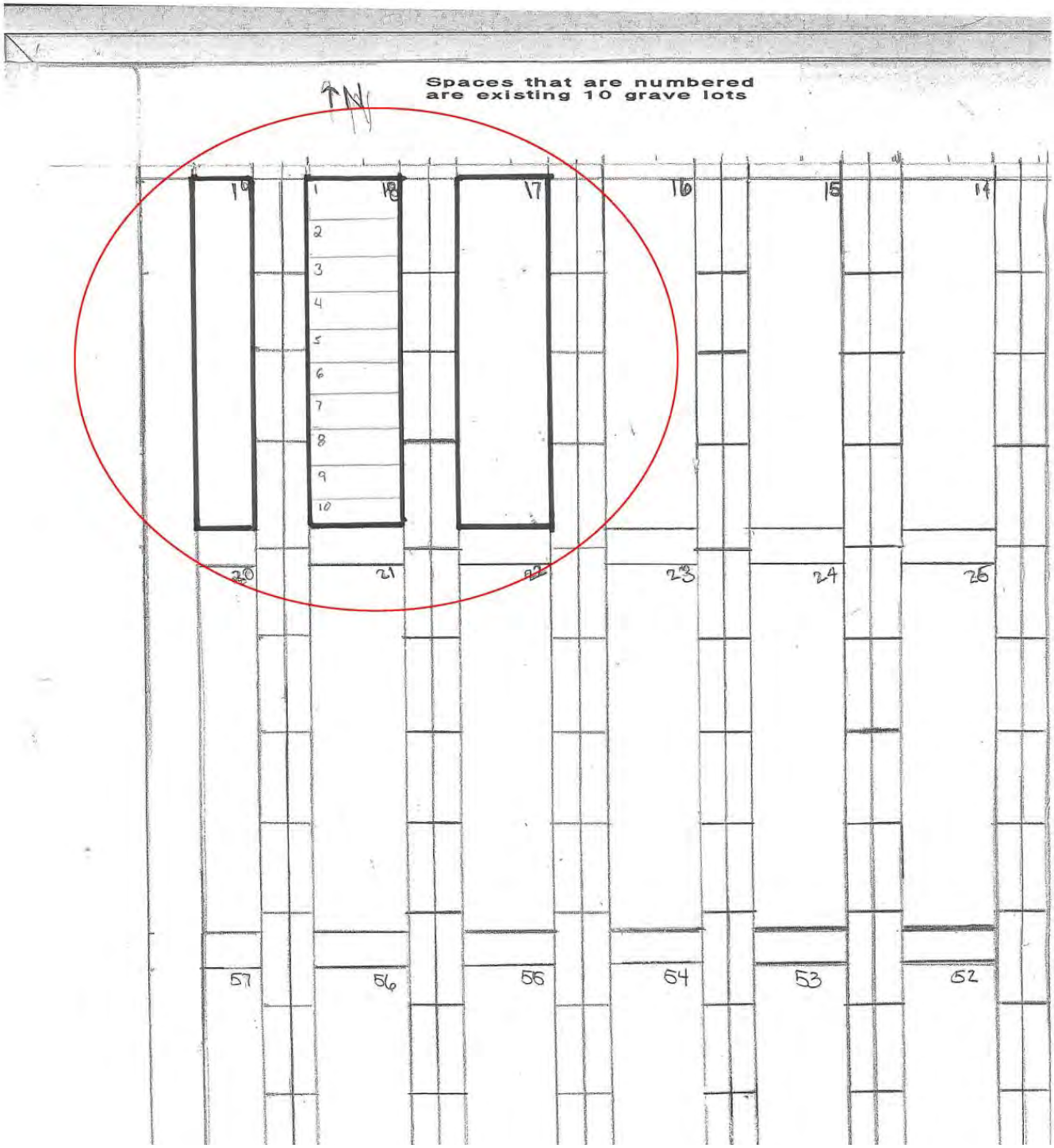
(New graves outlined in red)

Oak

SECTIONS D, K, L & O
(New graves outlined in red)



SAMPLE LAYOUT OF NEW GRAVES



Description:
Each large rectangle is an existing Lot which consists of 10 grave spaces. The green space between each Lot is where the new graves will be located.

MEMORANDUM

Community Development

DATE: **March 31, 2015**

TO: **Greenwood Cemetery Advisory Board**

FROM: **Matthew Baka, Senior Planner**

SUBJECT: **Historic District Commission Review – Greenwood Cemetery, Mill Pond Neighborhood**

In accordance with the request of the Greenwood Cemetery Advisor Board (GCAB), the Historic District Commission (HDC) performed a courtesy review of the proposed addition of new grave sites to the Greenwood Historic Cemetery. In order to facilitate the review, the Planning Department analyzed the proposal against the guidelines recommended by the State Historic Preservation Office (SHPO) as well as the "*Michigan Historic Cemeteries Preservation Guide"*. The findings of that analysis were presented in a report to the HDC at the meeting of March 18th, 2015 (report attached). After careful consideration and discussion, the HDC provided several suggestions should the City decide to move forward with the proposal. The comments of the HDC were as follows;

- That the commission extends its appreciation that they have been given the opportunity to comment on this plan and is supportive with the following suggestions;
- No existing headstones or grave sites are moved;
- No existing trees or mature landscaping is removed;
- Flush mounted headstones are used for all newly created grave sites so as not to provide any visual disruption;
- The structural integrity of all of the historic markers and the landscape is maintained;
- Contractors that do work in the cemetery must be bonded and insured to ensure that if any damage is done the cost to repair is covered; and
- The HDC hopes to have the opportunity to continue with reviews of the cemetery.

Although no formal approval or recommendation is required for projects on City property, the HDC was appreciative of the opportunity to comment on the proposal and were supportive of the plan due to the sensitivity shown to the historic elements of the cemetery and the potential for a revenue stream to provide for the long term care and preservation of the property.

DRAFT
HISTORIC DISTRICT COMMISSION
MINUTES OF MARCH 18, 2015
Municipal Building Commission Room
151 Martin, Birmingham, Michigan

Minutes of the regular meeting of the Historic District Commission ("HDC") held Wednesday, March 18, 2015. Board Member Keith Deyer acted at chairman and called the meeting to order at 7 p.m.

Present: Board Members Mark Coir, Keith Deyer, Natalia Dukas, Vice Chairperson Shelli Weisberg, Michael Willoughby; Student Representatives Zoe Bowers, Patrick Rogers

Absent: Chairman John Henke

Administration: Matthew Baka, Sr. Planner
Laura Pierce, City Clerk
Carole Salutes, Recording Secretary

03-17-15

HISTORIC DESIGN REVIEW
Historic Greenwood Cemetery
Mill Pond Neighborhood

Zoning: PP Public Property

Proposal: The City of Birmingham recently established the Greenwood Cemetery Advisory Board ("GCAB") to provide input to the City Commission on Capital Improvements, Day-to-Day operations, as well as annual and special reports, as needed, on Greenwood Cemetery related issues. Recently, the GCAB has been studying the potential for creating additional grave sites within the unused green spaces throughout the cemetery. The cemetery is City owned property and therefore does not require review and approval from City boards. However, as Greenwood Cemetery is a designated historic site within the City the GCAB felt it was appropriate to request a courtesy review from the HDC for the proposed changes.

The proposal is to add additional graves throughout the site. The majority of the grave sites that have been proposed to be added are located in sections B and C of the cemetery with some additional sites proposed to be added to sections D, K, L, and O. The GCAB is not proposing to add grave sites to section A (the oldest part of the cemetery) or in the portions of sections B and C that are closest to Oak. All of the proposed new grave sites would be perpendicular to the existing sites and be required

to use headstones that are flush with the ground so that they don't interfere with the visual rhythm of the existing headstones.

While researching the appropriateness of this proposal, the Michigan State Historic Preservation Office ("SHPO") recommended using the "Michigan Historic Cemeteries Preservation Guide" as a reference.

The proposed addition of grave sites to the cemetery may be done successfully without compromising the historic value of the site provided that careful consideration is given to the current configuration of headstones and landscaping. The Planning staff believes that such additions should only be done if no existing headstones or mature landscaping are compromised or moved and if flush headstones are used for all new grave sites. If that can be done in a tasteful way then the proposal would meet the Secretary of the Interior Standard for Rehabilitation #9.

Design Standards and Guidelines
1. (a) In reviewing plans, the Commission shall follow the U.S. Secretary of the Interior's standards for rehabilitation and guidelines for rehabilitating historic buildings as set forth in 36 C.F.R. part 67. Design review standards and guidelines that address special design characteristics of historic districts administered by the Commission may be followed if they are equivalent in guidance to the Secretary of Interior's standards and guidelines and are established or approved by the SHPO of the Michigan Historical Center.

Ms. Pierce said the GCAB has not had any discussions about columbariums at this point. If they do they will come before this board again. For any new graves that are sold, 25% would go to the contractor and 75% to the City for the cemetery Perpetual Care Fund. There are no capital needs at this time. Currently there are 144 names on a list of people who are interested in purchasing a grave. As of 2009 there were 200 to 300 graves that had not had any activity for 50 years.

Chairman Deyer called for comments from the public at 7:25 p.m.

Ms. Pam DeWeese who lives on Purdy said she has an interest in seeing the historic nature of the cemetery well preserved. It is one of the oldest city cemeteries in the State of Michigan. She thinks this plan has a lot of merit. However, there should be attention paid to the accessibility and structural integrity of the historic markers, as many of them are over one hundred years old.

Ms. Pierce advised that the cost of graves is set by the City fee schedule. Currently a full grave goes for $3 thousand. If this proposal is accepted and recommended by the HDC and the City Commission approves it, the GCAB will be recommending a tiered schedule depending on the size of the space.

Mr. Willoughby said it strikes him that if this proposal is not enacted there won't be money to maintain the cemetery.

HDC members agreed if this plan were to proceed their suggestions would be:

- That the commission extends its appreciation that they have been given the opportunity to comment on this plan;
- No existing headstones or grave sites are moved;
- No existing trees or mature landscaping is removed;
- Flush mounted headstones are used for all newly created grave sites so as not to provide any visual disruption;
- The structural integrity of all of the historic markers and the landscape is maintained;
- Contractors that do work in the cemetery must be bonded and insured to ensure that if any damage is done the cost to repair is covered; and
- The HDC hopes to have the opportunity to continue with reviews of the cemetery.

AGENDA
BIRMINGHAM HISTORIC DISTRICT COMMISSION
MUNICIPAL BUILDING-COMMISSION ROOM-151 MARTIN STREET
WEDNESDAY – March 18, 2015
*****************7:00 PM*****************

1) **Roll Call**
2) **Approval of the HDC Minutes of February 4, 2015**
3) **Sign Review**
4) **Historic Design Review**
   Greenwood Cemetery
5) **Historic Design and Sign Review**
6) **Short Term Projects**
7) **Miscellaneous Business and Communication**
   A. Staff Reports
      - Administrative Approvals
      - Violation Notices
      - Demolition Applications
   B. Communications
      - Commissioners Comments
8) **Adjournment**

Notice: Individuals requiring accommodations, such as interpreter services, for effective participation in this meeting should contact the City Clerk's Office at (248) 530-1880 at least on day in advance of the public meeting.

Las personas que requieren alojamiento, tales como servicios de interpretación, la participación efectiva en esta reunión deben ponerse en contacto con la Oficina del Secretario Municipal al (248) 530-1880 por lo menos el día antes de la reunión pública. (Title VI of the Civil Rights Act of 1964).

A PERSON DESIGNATED WITH THE AUTHORITY TO MAKE DECISIONS MUST BE PRESENT AT THE MEETING.

AGENDA

City of Birmingham
A Walkable Community

MEMORANDUM

Community Development

DATE: **March 13, 2015**

TO: **Historic District Commission**

FROM: **Matthew Baka, Senior Planner**

SUBJECT: **Historic Design Review – Greenwood Cemetery, Mill Pond Neighborhood**

Zoning: PP – Public Property

Existing Use: Greenwood Historic Cemetery

Proposal

The City of Birmingham recently established the Greenwood Cemetery Advisory Board (GCAB) to provide input to the City Commission on Capital Improvements, Day to Day operations as well as annual and special reports, as needed, on Greenwood Cemetery related issues. Recently, the GCAB has been studying the potential for creating additional grave sites within the unused green spaces throughout the Cemetery. The Cemetery is City owned property and therefore does not require review and approval from City boards. However, as Greenwood Cemetery is a designated historic site within the City the GCAB felt it was appropriate to request a courtesy review for the proposed changes from the Historic District Commission. The City Clerk has provided the attached memo explaining the motivations and reasoning behind this proposal.

The majority of the grave sites that have been proposed to be added are located in sections B and C of the Cemetery with some additional sites proposed to be added to sections D, K, L, and O. Maps illustrating the areas being discussed are provided in the attached memo from the City Clerk (proposed new sites highlighted in red). The GCAB is not proposing to add grave sites to section A (the oldest part of the Cemetery) or in the portions of sections B and C that are closest to Oak. All of the proposed new grave sites would be perpendicular to the existing sites and be required to use headstones that are flush with the ground so that they don't interfere with the visual rhythm of the existing headstones.

While researching the appropriateness of this proposal, the Michigan State Historic Preservation Office (SHPO) recommended the using the "*Michigan Historic Cemeteries Preservation Guide"* as a reference (attached). After careful review of the guide, there are several statements contained in the guide are relevant to the proposal.

"In still-active cemeteries, newer burials are set behind or to one side of the oldest graves." Pg. 7

This excerpt is contained within the guide as an example of common practice rather than a recommendation. However, it is relevant to this discussion in so far as it provides a standard to follow that is consistent with practices in other historic Cemeteries. The majority of the new grave sites are proposed to be located in the back two-thirds of section B and C. The Oldest section of the Cemetery (section A) will not be altered. The front third of sections B and C would not be altered to preserve the current appearance of the Cemetery from the street.

"The circulation pattern of roads and pathways in the cemetery should remain as originally laid out." Pg. 140

Initial discussions regarding the creation of new grave sites contemplated abandoning the section of road within the Cemetery between sections K and L. However, after the determination was made that the used green space was a feasible alternative to eliminating the existing road that plan was no longer pursued.

"Rehabilitation standards acknowledge the need to alter or add to a cultural landscape to meet continuing or new uses while retaining the landscape's historic character." Pg. 10

Rehabilitation is defined by the National Park Service as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. The concept of adding to or altering historic properties is generally accepted as necessary to the continued use and maintenance of historic sites. However, any such changes must be done in a way that is compatible with and does not destroy the historic materials and does not attempt to replicate historic aspects of the site.

The proposed addition of grave sites to the Cemetery may be done successfully without compromising the historic value of the site provided that careful consideration is given to the current configuration of headstones and landscaping. The Planning staff believes that such additions should only be done if no existing headstones or mature landscaping are compromised or moved and if flush headstones are used for all new grave sites. If that can be accomplished, then the proposal would meet the Secretary of the Interior standard for Rehabilitation #9.

Sec. 127-11. Design review standards and guidelines.

1. (a) In reviewing plans, the commission shall follow the U.S. secretary of the interior's standards for rehabilitation and guidelines for rehabilitating historic buildings as set forth in 36 C.F.R. part 67. Design review standards and guidelines that address special design characteristics of historic districts administered by the

commission may be followed if they are equivalent in guidance to the secretary of interior's standards and guidelines and are established or approved by the state historic preservation office of the Michigan Historical Center.

(b) In reviewing plans, the commission shall also consider all of the following:

(1) The historic or architectural value and significance of the resource and its relationship to the historic value of the surrounding area.

(2) The relationship of any architectural features of the resource to the rest of the resource and to the surrounding area.

(3) The general compatibility of the design, arrangement, texture, and materials proposed to be used.

(4) Other factors, such as aesthetic value, that the commission finds relevant.

RECOMMENDATION

The Planning Division recommends that the Commission issue a Certificate of Approval for the Greenwood Cemetery review with the following conditions;

1. No existing headstones or grave sites are moved;
2. No existing trees or mature landscaping is removed; and
3. Flush mounted headstones are used for all newly created grave sites

"The Secretary of the Interior's Standards for Rehabilitation" standards number 9 will be met upon fulfillment of condition(s).

WORDING FOR MOTIONS

I move that the Commission issue a Certificate of Appropriateness for _____. The work as proposed meets "The Secretary of the Interior's Standards for Rehabilitation" standard number_____.

I move that the Commission issue a Certificate of Appropriateness for _____, provided the following conditions are met: (List Conditions). "The Secretary of the Interior's Standards for Rehabilitation" standard number_____ will be met upon fulfillment of condition(s).

I move that the Commission deny the historic _____application for _____ . Because of _____ the work does not meet 'The Secretary of the Interior's Standards for Rehabilitation" standard number_____.

"THE SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION AND GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS"

The U. S. secretary of the interior standards for rehabilitation are as follows:

(1) A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

(2) The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

(3) Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

(4) Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

(5) Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

(6) Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of

missing features shall be substantiated by documentary, physical, or pictorial evidence.

(7) Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

(8) Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

(9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

(10) New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Notice To Proceed

I move the Commission issue a Notice to Proceed for number _____. The work is not appropriate, however the following condition prevails: _____and the proposed application will materially correct the condition.

Choose from one of these conditions:

a) The resource constitutes hazard to the safety of the public or the structure's occupants.

b) The resource is a deterrent to a major improvement program that will be of substantial benefit to the community and the applicant proposing the work has obtained all necessary planning and zoning approvals, financing, and environmental clearances.

c) Retaining the resource will cause undue financial hardship to the owner when a governmental action, an act of God, or other events beyond the owner's control created the hardship, and all feasible alternatives to eliminate the financial hardship, which may include offering the resource for sale at its fair market value or moving the resource to a vacant site within the historic district. have been attempted and exhausted by the owner.

d) Retaining the resource is not in the best of the majority of the community.

City of Birmingham
A Walkable Community

MEMORANDUM

City Clerk's Office

DATE: **March 9, 2015**

TO: **Historic District Commission**

FROM: **Laura M. Pierce, City Clerk**

SUBJECT: **Greenwood Cemetery**
Regarding the use of green space for additional graves

The Greenwood Cemetery Advisory Board (GCAB) is considering allowing burials in the unused green spaces in Greenwood Cemetery in Sections B, C, D, K, L, and O.

The demand for graves in Greenwood Cemetery is quite high. Currently there are 144 individuals listed on the "Grave Interest List" who are interested in purchasing graves in the Cemetery. As a result, the City has been considering alternatives to locate additional burial space in the Cemetery such as reclamation or utilizing the roadway between section K & L.

The reclamation process is lengthy and will take a minimum of seven years before any graves would become available. The Greenwood Cemetery Advisory Committee, a precursor to the GCAB, recommended against using the existing roadway to create additional burial space due to sensitivities by the current grave owners.

After careful review of the Cemetery grounds, the City contractor identified several areas which could be used for burials, specifically Sections B, C, D, K, L, and O, where there is green space between lots that was never used or sold for burials.

The following number of graves have been identified:

Section	Number of Graves
B*	408
C*	72
D	8
K	16
L	16
O	10
TOTAL	530

(*There would be some areas excluded due to existing trees and shrubs.)

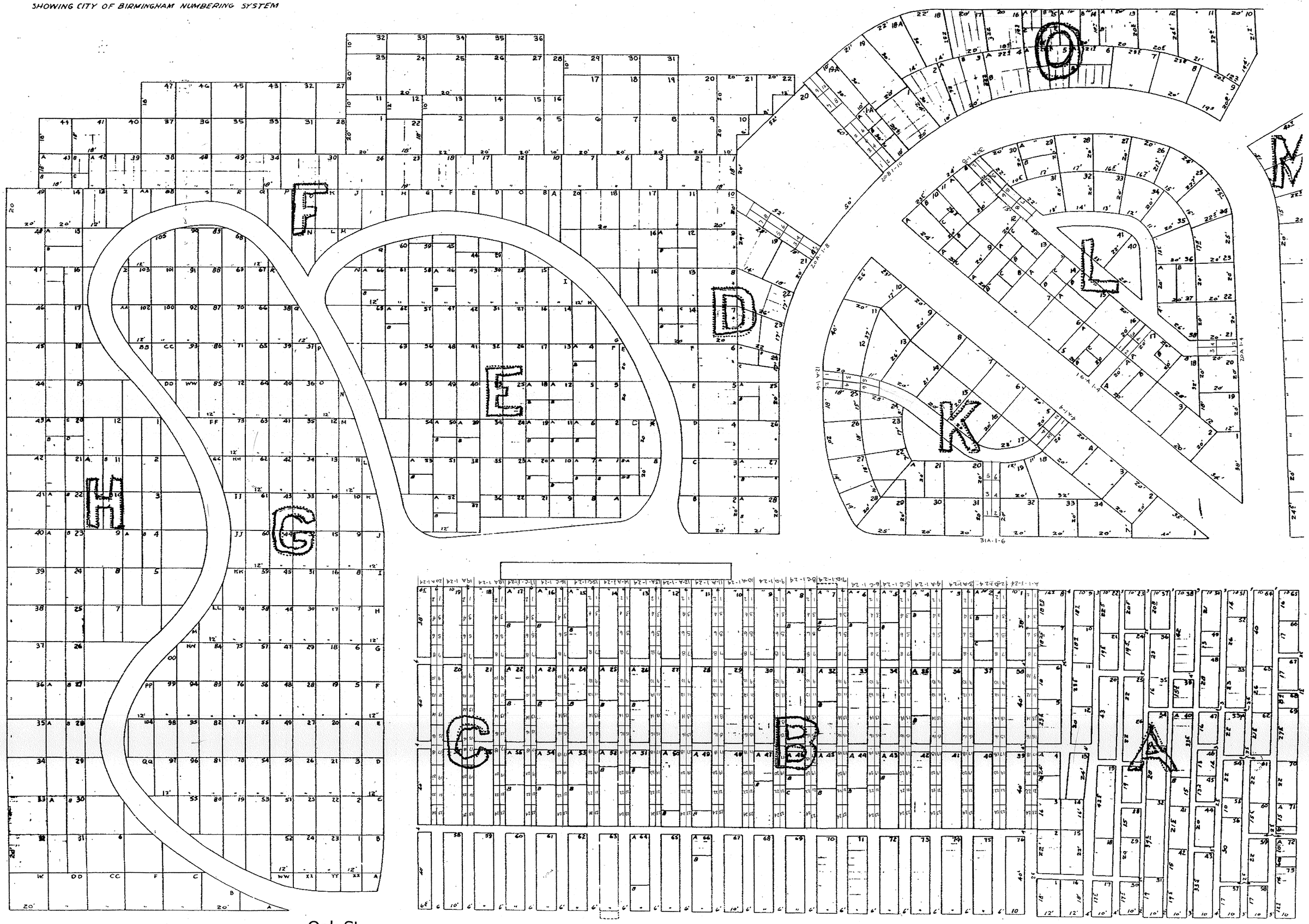
If it is determined that the green space in Sections B, C, D, K, L and O is viable to use for additional graves, the Board will consider recommending that the City Commission amend the Greenwood Cemetery Rules and Regulations to limit the types of markers on those graves to flush markers only. Limiting the type of markers to ground level only, will maintain the existing

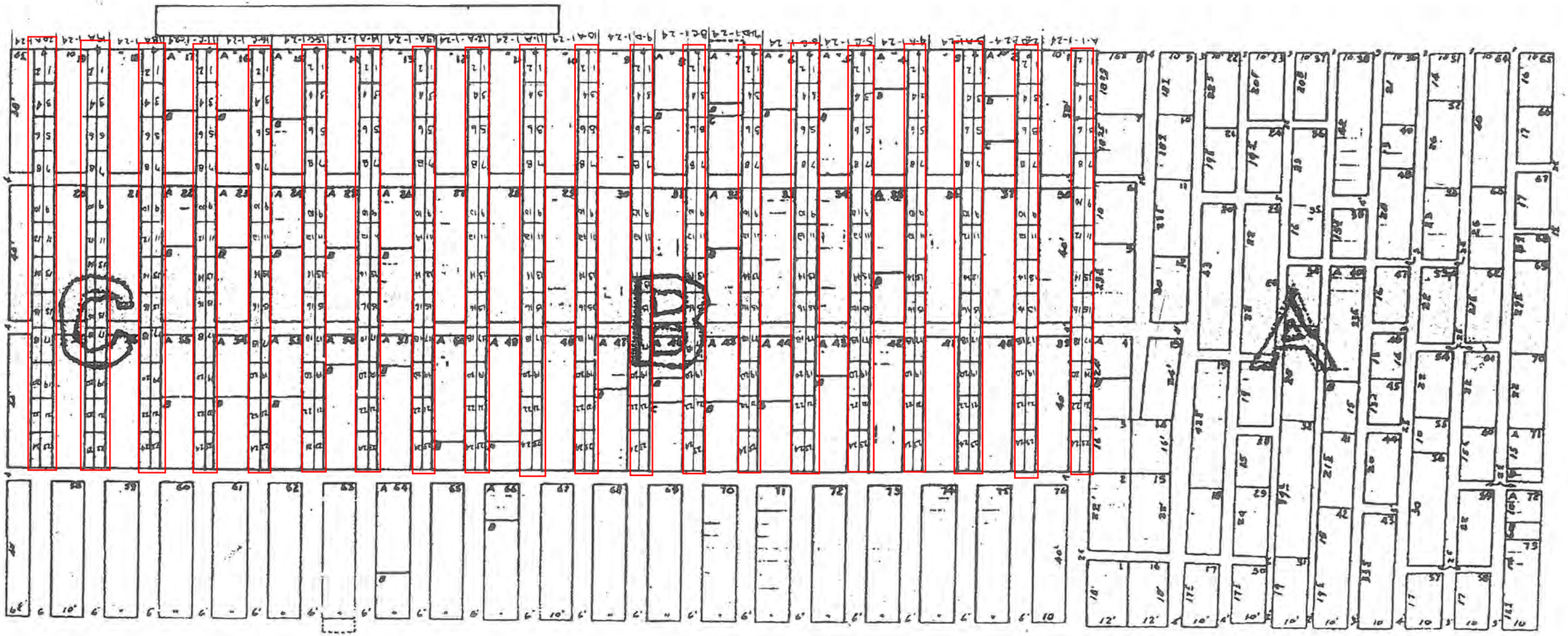
visual character of the Cemetery. The proposed revision to the Rules and Regulations is attached. In addition, these graves could immediately be sold to individuals on the interest list with inventory left over for others not on the list.

Since Greenwood Cemetery is designated as a historic district, the GCAB would appreciate feedback from the HDC regarding the proposal to allow for additional burials in the green space at the cemetery and whether there are any limitations that would prohibit or be impacted by such action.

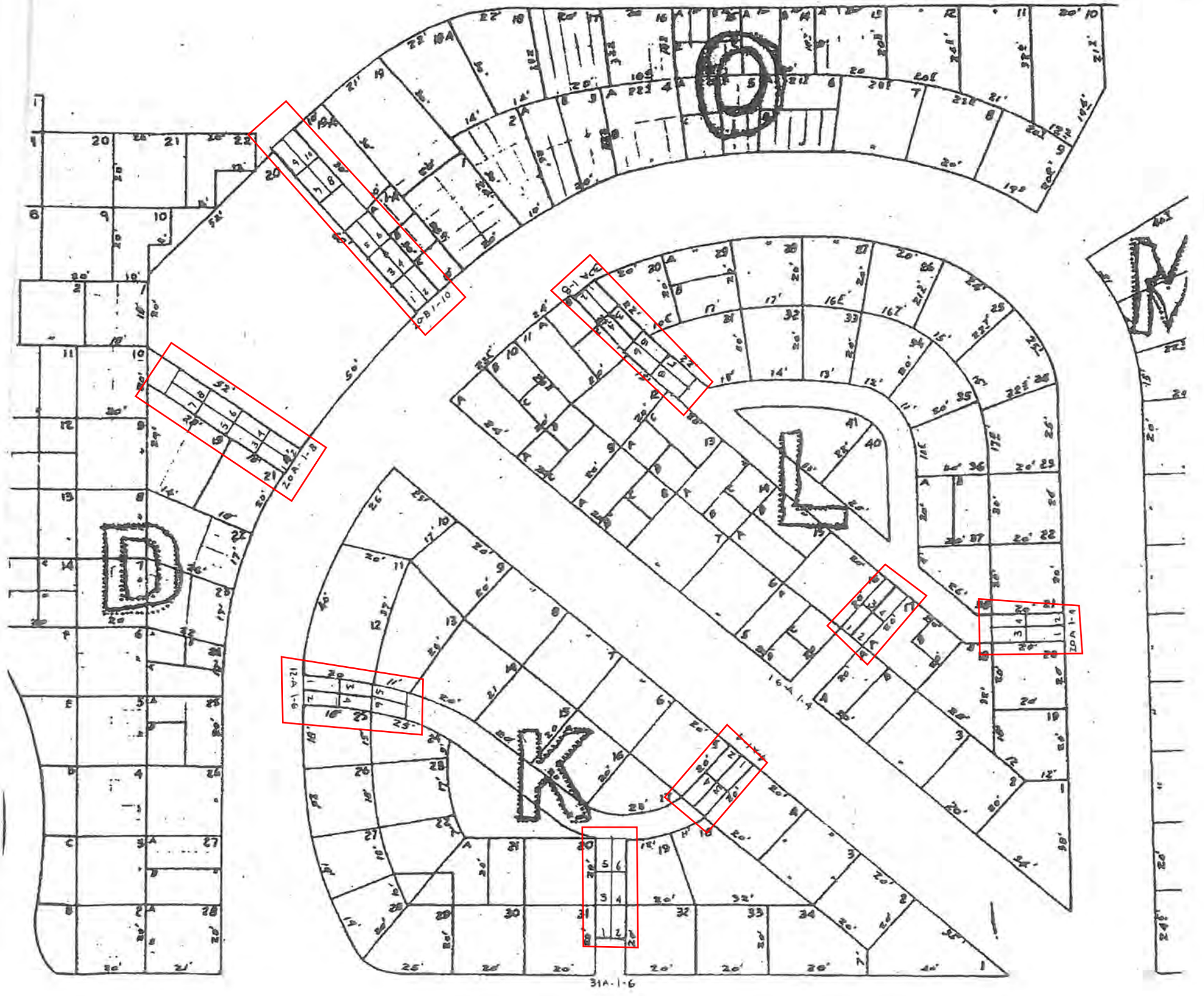
GREENWOOD CEMETERY

SHOWING CITY OF BIRMINGHAM NUMBERING SYSTEM

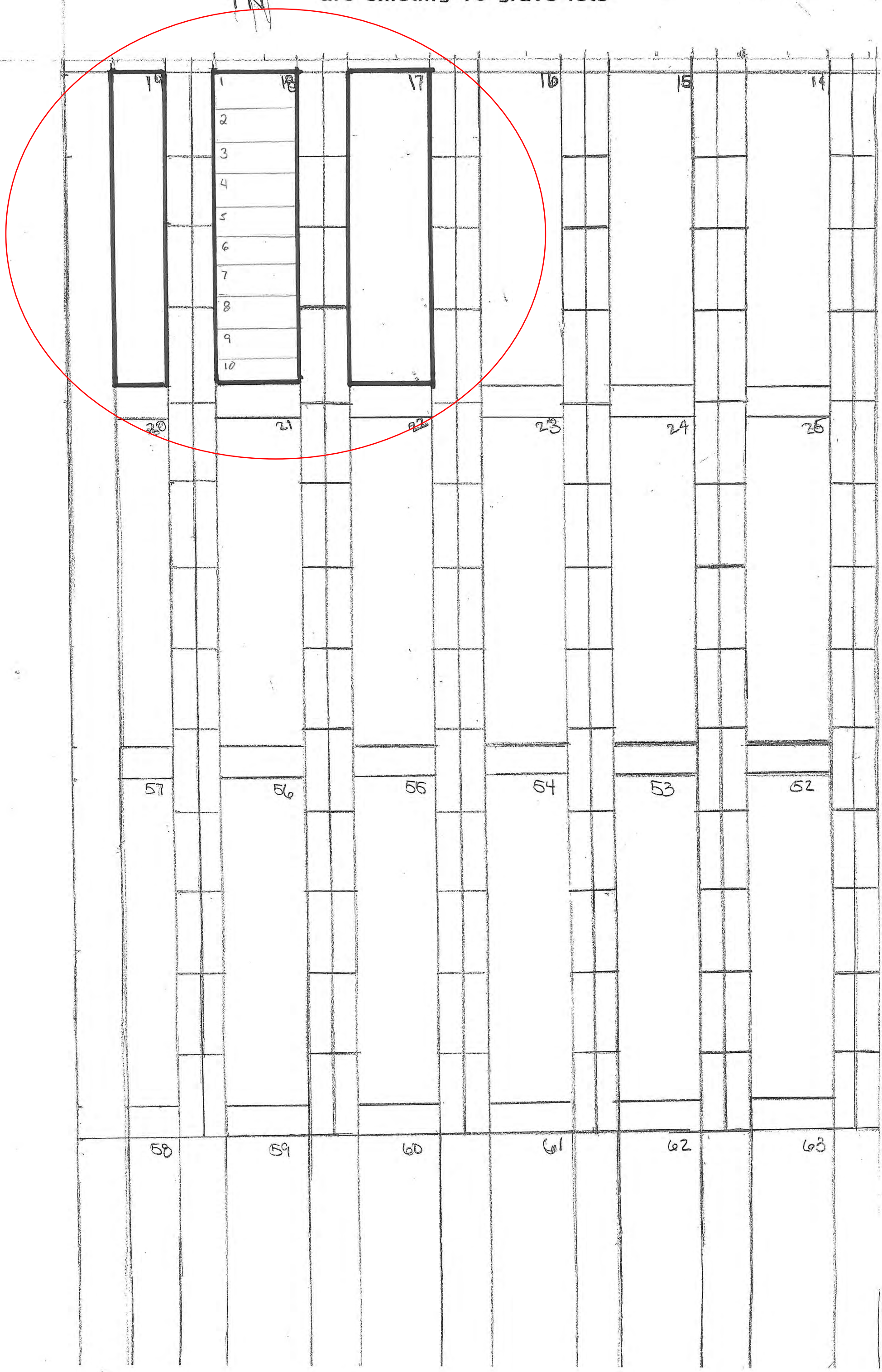




Oak


N
20B1-10
20A-1-8
12-A-1-6
16-A-1-4
20A-1-4
31A-1-6

Spaces that are numbered
are existing 10 grave lots



FLUSH MEMORIAL SECTION - F-NORTH ONLY

a. No structures shall be placed or constructed by anyone other than employees of the City ~~Department of Public Services~~ in the area of Greenwood Cemetery designated as the "Flush Memorial Section".

b. Bronze or granite markers only, set flush with the turf, will be permitted in this section. No structures which would extend above the ground level shall be permitted.

c. A form with the size, material and design must be submitted to the City for approval and all installation fees must be paid in full prior to delivery of the memorial. Installation will not occur between November 1st and March 31st unless weather permits.

FLUSH MEMORIAL SECTION – AREAS PLOTTED AFTER JANUARY 1, 2015

a. On grave spaces in Sections B, C, K, L, and O, all memorials on new lots plotted after January 1, 2015, must be installed at lawn level. Memorials can be individual markers measuring 24" x 12" x 4" or 16" x 24" x 4" or companion memorials over two (2) graves measuring 48" x 12" x 4".

b. The memorials must be made of acceptable granite material and set at lawn level.

c. A form with the size, material and design must be submitted to the City for approval and all installation fees must be paid in full prior to delivery of the memorial. Installation will not occur between November 1st and March 31st unless weather permits.

VII. FUNERALS, ~~AND~~ INTERMENTS AND DISINTERMENTS

INTERMENTS

No lot or burial space shall be used for any purpose other than the interment of human remains and the erection of appropriate memorials to the dead.

No interment shall be made in Greenwood Cemetery until a proper burial permit has been issued, and until all other legally required permits have been issued by, and filed with, the proper authorities.

~~Department~~ City personnel will provide opening and closing of grave, initial and periodic maintenance only, and will not be responsible for handling and lowering vault or casket. Tents, lowering devices and other materials shall be furnished by the funeral director or vault company.

No grave shall be dug closer than six (6) inches from the line of any lot.

Michigan Historic Cemeteries Preservation Guide

Gregg G. King with
Susan Kosky, Kathleen Glynn & Gladys Saborio

Supported by

Michigan Historic Cemetery Preservation Manual

GREGG G. KING
with
SUSAN KOSKY
KATHLEEN GLYNN
GLADYS SABORIO

SUPPORTED BY:

Michigan State Historic Preservation Office
and
The Charter Township of Canton
Historic District Commission
and
Department of Leisure Services

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The activity that is the subject of this project has been financed in part with Federal funds from the National Parks Service, U.S. Department of the Interior, through the Michigan Department of History, Arts and Libraries. However, the contents and opinions herein do not necessarily reflect the views or policies of the Department of the Interior or the Department of History, Arts and Libraries, nor does the mention of trade names or commercial products herein constitute endorsement or recommendation by the Department of the Interior or the Michigan Department of History, Arts and Libraries.

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Office of Equal Opportunity
National Park Service
1849 C Street, NW
Washington, DC 20240

Acknowledgements

The authors wish to acknowledge those people and organizations without whom this manual could not have been written. First we wish to gratefully acknowledge the Township Board of the Charter Township of Canton for having the vision to realize the need for this manual and for providing funding. We would like to sincerely thank the Canton Township Historic District Commission for its involvement and support. Additionally we would like to thank the management of the Canton Township Leisure Services Department, Parks Division, specifically Ann Conklin, Brad Sharp and Abe Vinitski for their financial support and willingness to allow this publication to evolve. Their commitment to historic cemetery preservation is commendable and thoroughly appreciated. To the Canton Community Resources staff, a special thank you for their support of this work and for running hundreds of sheets of copy.

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A special thanks, to Roger Glynn for his technical expertise in editing the monument repairs section; Dennis Noll for providing several drawings for this manual; and to RaeChell Garrett for the cover design of the manual. And of course much appreciation goes to our spouses and families for their support, forbearance, and for keeping our households running smoothly throughout the project.

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PHOTOGRAPH AND ILLUSTRATION CREDITS

All photographs were taken by Gregg G. King with the exception of the following:

Page 36	Zinc Statue, Gladys Saborio
Page 41	Photo courtesy of Arnets, Beckers and Burrells
Pages 77, 78	Tablet markers, Kathleen Glynn
Page 146	The Saline Reporter

All illustrations were drawn by Dennis Noll with the exception of the following:

Pages 38, 50	Monument Types and Fence Designs, Chicora Foundation
Pages 43	Original drawings from Chicora Foundation, adapted by Dennis Noll
Page 54	Mapping, Ontario Ministry of Citizenship, Culture and Recreation
Page 59	Original drawings from The Association for Gravestone Studies, adapted by Dennis Noll
Page 96	Original drawings from The Association for Gravestone Studies and Ontario Ministry of Citizenship, Culture and Recreation, adapted by Dennis Noll
Page 109	Pinning, Oregon Historic Cemeteries Association

Preface

There are hundreds of historic cemeteries in the state of Michigan. However, until publication of this manual, anyone wishing to undertake conservation and preservation of these historic cemeteries had to search through numerous and often conflicting sources for information. There was no comprehensive source outlining sound conservation and preservation practices. With publication of this manual, endorsed by the State Historic Preservation Office, individuals and communities now have one reliable source.

This manual outlines the preservation and conservation process in a step by step manner. It facilitates the process by offering chapters on organizing efforts, surveying and documenting, and conservation of the cemetery. In addition, a chapter on management and maintenance assists in planning for the future care of the cemetery. A final chapter offers suggestions for optimal utilization of the historic cemetery property.

An extensive appendix offers documentation forms, readings, websites, and a glossary of terms that will help add to the body of knowledge of conservators, and community officials and guide them in their efforts. Information from sources such as the National Park Service, The Association for Gravestones Studies, the National Preservation Institute, the Chicora Foundation, the Michigan State Historic Preservation Office and the National Trust for Historic Preservation; interviews with conservators as well as years of practical conservation practice add to the usefulness of the manual. Though technologies change and new products and practices evolve the concepts presented in the manual will serve as a solid foundation for preservation and conservation projects.

Introduction

Many small cemeteries in rural and urban areas throughout Michigan are in need of urgent care. They are often neglected and vandalized, and sometimes abandoned. This manual is intended for municipalities, civic groups, historical societies, genealogists or any others interested in the proper methods of conservation and maintenance of these small cemeteries. It will serve as a readily accessible guide to resources and methods that will enable communities, civic groups and others to document, preserve, and maintain their historic burying grounds. It is not, however, meant for those wishing to conserve large cemetery sculpture or architecture, work that is best left to trained and experienced professionals. Varying levels of skills are required to perform cleaning, repair and documentation of a cemetery. The following three skill levels will be used throughout the manual to make it apparent who can be called upon to perform indicated tasks.

LEVEL ONE	LEVEL TWO	LEVEL THREE
1	2	3
some training (workshops, on-site training, or under the guidance of trained personnel)	experienced, trained personnel	professional

Although specifically written for a Michigan audience, the methodology, the resources, the very description of these cemeteries is much more regional. The practices set forth in this manual are acceptable anywhere and follow sound preservation theory.

For the purpose of this manual we shall call these cemeteries *historic cemeteries*. Other terms such as *rural, country* and *pioneer* are inadequate and misleading, even though many of these cemeteries are found in very country-like or rural settings. Many of these small historic cemeteries exist within the city limits of small towns. Others are located in the midst of urban and suburban development, lost among the new housing stock and adjacent to heavily traveled roadways. No single term exists that completely describes these small historic cemeteries, but they are readily recognizable as an important part of Michigan's rural and rapidly urbanizing landscape.

The term "Rural Cemetery" is often used to describe another type of property typified by Mt. Auburn Cemetery near Boston, one of America's first designed, garden cemeteries.

> In 1831 the Massachusetts Horticultural Society created Boston's Mt. Auburn, the first "rural cemetery" and prototype for many others. Gen. Henry A. S. Dearborn designed its original 72 acres based on the model of Pere Lachaise in Paris. Dr. Jacob Bigelow was responsible for Mt. Auburn's Egyptian gate, Gothic chapel and Norman tower, inspired by structures in English Gardens. (Tishler, p. 121)

Unlike the Rural Cemeteries of the nineteenth century, some of Michigan's small historic cemeteries are unplanned. Others employed a simple grid pattern of layout. Still others were a vernacular adaptation of the design principles of the Rural Cemetery Movement. They may have layouts of curving roadways, planned vistas and other elements found in the Rural Cemetery, or more commonly perimeter trees, a central avenue, a circle for a memorial, and formal plantings. They have changed and developed with their communities while maintaining much of their historic layout, monuments, plantings, and character.

Perhaps the closest definition of a historic cemetery is the one offered by Kenneth T. Jackson. In his book, *Silent Cities: Evolution of the American Cemetery*, Jackson refers to this type of burial ground as a "country graveyard."

> The county cemetery is a familiar site along the highways of the United States. The outskirts of every city and small town seem to include space for at least one burial ground. Such cemeteries are smaller, more open and more egalitarian than their counterparts in the city. Sometimes on top of a hill, sometimes in a clearing surrounded by woods, they tend to cover less than a dozen acres. Rarely do they include the mausoleums, large obelisk, elaborate statuary, high fences, and ethnic markers so common in urban cemeteries. Their typically unpretentious homemade or mail order markers commemorate a cross section of the citizenry, the first settlers, the foreign-born, and some of the "local boys" killed in battle. Tourists, finding the plots historical and picturesque, stop to read the dates when the area was settled, and the names, origins and religions of the local residents. (Jackson, p. 12)

Michigan historic cemeteries sometimes have an ethnic origin bearing grave markers that reflect the language and traditions of the area's settlers. In Washtenaw County, for example, there are several such cemeteries with German inscriptions attesting to their establishment by the local German immigrants. A particularly picturesque example exists in Cheboygan County with Swedish markers. The cemetery's layout and many monuments reflect this ethnicity. These cemeteries are and always have been local in nature. Old trees and other historic plant material are often a part of the setting. Small buildings, mausoleums and other structures are common. Many cemeteries sport decorative fencing, signage and gates typically added in the late nineteenth or early twentieth century. In still-active cemeteries, newer burials are set behind or to one side of the oldest graves. The main similarities of Michigan's small historic cemeteries are their age and their size. In Michigan most originated in the earlier decades of the nineteenth century or more precisely at settlement time. Although each historic cemetery is unique in character, these cemeteries have many commonalties.

- They are usually quite small, often less than ten acres.
- Often they began as a family burying place and expanded over time.
- Frequently the land was set aside by some of the earliest settlers either by donation or direct purchase.
- Many are associated with small country churches or township centers.
- Headstones are less massive and ornate than those found in urban cemeteries.
- If there are historic buildings or structures associated with them, they are typically small in scale and likely to be vernacular rather than high style architecture.

As conscientious members of society it is our responsibility to care for these burial sites of our respected dead. Benjamin Franklin said, “Show me your burial grounds and I’ll show you a measure of the civility of a community.” Accepting this responsibility we help to preserve a resource that will benefit not only us but future generations.

Historic cemeteries are important cultural, architectural and archaeological resources. They provide us with information on our community’s history. Often a cemetery is the only remnant left from early settlements and as such is a vital link with the past. They are an invaluable educational tool whether we seek to research genealogy, educate our youth or delve into local history. They provide quiet places to commemorate the deceased, whether it be of a most personal nature, or on a local, regional, or even national scale. Originally located in agricultural areas that are now becoming more urbanized, early cemeteries can provide a place for quiet reflection and solitude and much needed open space. Buildings, fencing and other ancillary features are artifacts that demonstrate historic stylistic trends and construction methods. Archaeological excavations in cemeteries, whether they are Native American or Euro-American, are extremely controversial. They should only be undertaken if the cemetery is being formally vacated and the interments moved to other burial locations and NEVER without necessary permits and appropriate consultation with descendents of those interred. Simple abandonment of a cemetery does not make it an appropriate venue for archaeological study.

These important places may provide us with some of the earliest written local history. Headstones reveal names and dates for locally significant persons. They offer glimpses into local illness and epidemics and tell of a community’s sacrifices in our nation’s wars. The same headstones provide us with samples of local folk art and, particularly after the Civil War, reflect a substantial amount of popular cultural standardization of monument forms and motifs. They were transmitted through such sources as design books and catalogs. Extant historic plant materials can be collected for study and can be reintroduced in other gardens.

Old cemeteries provide valuable information to those interested in their family histories, information that may not be available elsewhere. Early graveyards remind us of the fragility of life in earlier times and of how the area’s pioneers created lives for themselves against tremendous odds. Sometimes they provide us with more than the bare facts of birth and death; they provide us with tender, tragic or humorous glimpses into the lives of earlier generations. They tell us about the struggle to survive childhood diseases, childbirth, wars and epidemics. But most of all they tell us about the recurring cycle of birth, life, and death and how we are all a part of that cycle.

Cemeteries are integral parts of the cultural landscape. School children and other members of a community may use them as outdoor museums dedicated to an area's history and cultural traditions. Site visits enable visitors to observe first hand important community artifacts. Volunteers trained in maintenance and conservation techniques can learn while providing an important local service. They can assist in the conservation and preservation of cultural artifacts for the education of future generations.

An area's architectural history is evident in its cemeteries. Churches that are associated with historic cemeteries and small buildings such as chapels, mausoleums, and storage sheds all reflect the taste, architectural styles and ethnicity common in the community at the time of their construction. They reflect the architectural preferences of their time and can show a greater connection to the tastes of the nation. Many mid to late nineteenth century cemeteries have small Gothic Revival, Richardsonian Romanesque, or Neoclassical buildings, styles taken from medieval and classical sources and popularized by trendsetters like Andrew Jackson Downing, a nineteenth century architect, horticulturist, and writer. Others have early twentieth century style buildings from Egyptian Revival to Colonial Revival. All these styles borrow motifs commonly associated with age-old funeral and burial practices.

While major repair and rehabilitation of mausoleums and other buildings are beyond the scope of this manual and should be left to professionals, we include a section on repointing masonry. Documentation and repair of artifacts such as monuments, fencing and gates are an important focus of this work. Often these valuable cultural artifacts are in great jeopardy from weathering, environmental damage, vandalism, and neglect. They are in urgent need of conservation and preservation and provide communities, civic organizations, and others a tremendous opportunity to become involved in the "monumental" effort of cemetery preservation.

This manual takes a multi-topic approach to preservation and conservation efforts. While we use the term "preservation" to mean maintaining the historic integrity of a cemetery's site, we use the term "conservation" to refer to those processes used in caring for damaged gravestones and artifacts. Topics are discussed from the general to the specific. The manual begins with verifying ownership, conducting preliminary reconnaissance and preparing a plan. It then continues with identifying, photographing, mapping, and documenting cemetery features.

The next level encompasses conservation of cemetery elements and features and discusses the actual process used in conserving landscape, grave markers, and other features. This approach uses the Secretary of the Interior's *Standards for the Treatment of Historic*

Properties with Guidelines for the Treatment of Cultural Landscapes. The Secretary's *Guidelines* suggest four treatments: preservation, rehabilitation, restoration, and reconstruction.

> Of the four, Preservation standards require retention of the greatest amount of historic fabric, including the landscape's historic form, features, and details as they have evolved over time. Rehabilitation standards acknowledge the need to alter or add to a cultural landscape to meet continuing or new uses while retaining the landscape's historic character. Restoration standards allow for the depiction of a landscape at a particular time in its history by preserving materials from the period of significance and removing materials from other periods. Reconstruction standards establish a framework for recreating a vanished or non-surviving landscape with new materials, primarily for interpretive purposes. (Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, Introduction)

The final discussion concerns planning for educational and recreational activities geared to a variety of ages and interests. This step allows a community to optimize the use of its cemetery, minimize vandalism, and utilize its historic property. The manual concludes with a detailed list of sources for both information and materials pertinent to historic cemeteries.

Chapter 1

ORGANIZING EFFORTS

Organizing efforts should be a step by step process. The process will vary from community to community due to the availability of funds and manpower to perform the necessary tasks. Communities that have limited funding should choose to complete Plan A (below), which will stabilize the historic cemetery, and then develop a plan to implement actions as funds become available. Three flexible plans for cemetery preservation are suggested here, followed by more detailed suggestions to implement them.

Plan A would serve a community volunteer group or private individual with limited resources. This plan provides only the basics to stabilize and document the cemetery.

- Establish ownership and get permission to act. (Chapter1)
- Reconnaissance level survey (with a sketch map and documentary photography to determine needs). (Chapter 2)
- Basic cleaning and stabilization of grounds and stones. (Chapter 3)
- Routine maintenance. (Chapter 4)

Plan B would serve the individual or community that has some funding and trained volunteers.

- Establish ownership and get permission to act.
- Reconnaissance level survey followed by setting short and long-term goals. (Chapter 2)
- Cleaning and stabilization of grounds and stones. (Chapter 3)
- Document cemetery features with a detailed map and photographs. (Chapter 2)
- Research the cemetery's history. (Chapter 1)
- Plan for and implement complete repairs of all tombstones, fences, roads, and other features. (Chapter 3)
- In addition to routine maintenance, make long-term plans for preservation of landscape features. (Chapter 4)

Plan C is the ideal and would serve an individual or municipality with plentiful resources and access to trained professionals.

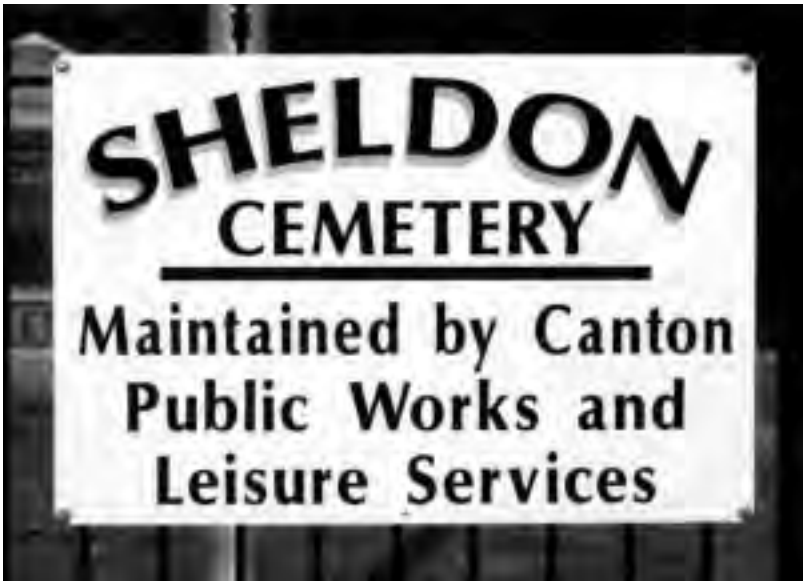
- Establish ownership and get permission to act.
- Reconnaissance level survey followed by setting short and long-term goals.
- Clean and stabilize grounds and stones.
- Form a citizen's group to help with fund raising, educating the public, and other goals.
- Detailed mapping, photography, cleaning of stones, and some maintenance.
- Repair all artifacts.
- Restore landscape (ponds, roads, vegetation).
- Plan for and implement long term maintenance goals.
- Put in place cemetery-related programs such as tours, nature talks, genealogy, etc. (Chapter 4)
- List cemetery in the National Register of Historic Places. (Chapter 1)

All three plans contain some of the following steps. The first two steps, establishing ownership and knowing the legal parameters, however, are steps that everyone must complete before beginning any work in the cemetery. Other steps can often be undertaken simultaneously and do not necessarily demand completion of one step before the commencement of the next.

Communities should exercise caution that initial enthusiasm for clean-up and repair does not precipitate unwise preservation actions. Reign in enthusiasm until suggested actions can be reviewed to make sure that actions do not harm the cemetery.

ESTABLISH OWNERSHIP

The first task to be completed prior to undertaking fieldwork in a historic cemetery conservation project is to establish the ownership of the cemetery. Often a historic cemetery has a sign that is prominently posted giving the hours of operation and naming the entity that has authority over the property. Many cemeteries are located adjacent to religious properties. Even though the cemetery may not be affiliated with the religious property, inquiring there will often produce the information needed to identify the owner. Further inquiries can be made at the local city, village or township hall, or at the county clerk or assessor's office. The county recorder of deeds or assessor's office will provide a legal description of the property. Researching records at the same offices might produce historic legal descriptions, providing a picture of how the property has changed over time. In Michigan, when small, private cemeteries in rural areas are abandoned and are no longer maintained, they become the property of the current landowner.



Often the cemetery will have a sign identifying who is responsible for its care.

KNOW THE LAWS AND REGULATIONS

Once ownership is established, the next step is to become aware of any existing laws or ordinances that might relate to the cemetery and the project. Cemetery associations often have regulations that are in effect. There also may be federal laws that relate to military and Native American burial grounds. This information can sometimes be garnered from the owner of the cemetery.

Most of the Michigan laws relating to cemeteries are contained in the Michigan Compiled Laws (MCL), Chapter 128. Cemetery corporations are covered in MCL 456.1 et seq. Transfer of rights to a municipal corporation is covered in MCL 456.181 to 184.

Act 113 (Chapter 128.61) of 1915 states that "The Township Board of each township shall have the authority and it shall be its duty to cause all cemeteries within its township, except private cemeteries and cemeteries owned by cities and villages located in such

townships, to be properly taken care of." Public Act 293 of 1966 as amended MCL section 45.515, subsection D affords responsibilities in part to the counties within the state (can be found on the Michigan Legislature web site). Chapter 5 includes a discussion on creating a local cemetery ordinance or an historic cemetery ordinance, a recommended step in future planning.

AWARENESS AND TEAM BUILDING

Having established ownership and verified legal restrictions, the next step is to build community awareness of the importance of the resource and the need for its preservation. Conduct a tour for interested citizens; if the cemetery is municipally owned be sure to include city / township officials. Be armed with reasons why this project is worthwhile and necessary for the community. Cite the problems that exist in the cemetery. Point out specific areas needing attention. To get people to support a project they must be convinced there is a need. Some suggestions for raising awareness are:

- Publicize your effort through local newspapers
- Get the local cable TV station interested in the project
- Establish a web site with photographs of headstones in need of attention
- Partner with local schools, scouting, and other organizations to make as many people as possible aware of the project
- Appeal to local church groups and garden clubs
- Garner support from historical and genealogical societies
- Demonstrate to local officials that there is something in the project for them

The last point is especially important because, if there is a local government body responsible for the upkeep of a cemetery, they are often not overly enthusiastic to expend funds on a restoration project. A cemetery is often a non-revenue generating property and funds for maintenance and upkeep can be scarce in tight budgets. If a proposed project offers a more diverse use of the property and a chance to build civic pride it will more readily gain the support of local officials. Municipal support can go a long way towards a continued maintenance program and may even increase resource allotment.

Initially the response may be slow but with persistent effort the project will gain momentum. A wide range of skills is needed in the effort to conserve a historic cemetery. Establishing a broad base of support, expertise and labor is necessary to achieve success.

Step 1: Get Permission

With enthusiasm and a team ready, it is time to approach the owner and request permission to conduct a reconnaissance level survey. It is extremely important that no work of any kind be conducted in the cemetery without first obtaining permission

from the owner. Be prepared to demonstrate that the resources and manpower are available to conduct such a survey. The sample form in Appendix A can be used or adapted to obtain written permission from the owner / governing authority. **It is important to keep this form on file.**

Step 2: Conduct a Reconnaissance Survey

With permission granted, it is time to begin the initial reconnaissance survey. A reconnaissance survey is a quick look at the property and requires little documentation. This survey will provide an overview of existing conditions, features, and landscape elements.

It is essential before any repair or replacement work is undertaken. The survey will aid in setting goals and determining funding needs. The reconnaissance level survey includes the following items:

- **A sketch map that contains the location of:**
  - present boundaries
  - fencing
  - gates
  - buildings
  - roads and pathways
  - water features
  - vegetation such as trees, flowers, shrubs
  - family plots
- An assessment of damaged artifacts and problems with landscape features, such as erosion and fallen branches
- Photography that records each of the above elements

During this survey, disturb nothing. Something as simple as moving rocks could alter the historic integrity of the cemetery. Mowing could destroy historic plant material. What at first appears to be debris could later prove to be of significance.

Along with the reconnaissance site survey it is important to research all former repair, restoration, and documentary projects. This will save duplicating efforts and help in accessing what should be done or undone. Perhaps a prior effort has documented inscriptions on stones. Roads, pathways, and access gates might have been altered or relocated to accommodate modern vehicles and equipment. New plantings, removal of downed trees and other historic plantings, new fencing or expansions of the cemetery's boundaries are often documented. Cemeteries maintained by local governmental bodies, cemetery associations, and by religious organizations might have records of prior efforts that can be used to determine how the cemetery changed over time.

In Michigan the township often has authority over cemeteries within its boundaries. Searching in the township records might reveal important data. Another avenue to pursue might be the records of local service organizations. In the early decades of the twentieth century a strong interest in national, local, and family history led to cemetery research. If organizations such as women's clubs, the Daughters of the American Revolution or other such civic or military groups were active in the area at the time, their records could lead to information about former efforts to document the cemetery. Old newspaper articles often will report community projects such as installation of monuments, cleanup efforts, and changes in cemetery boundaries. Locating existing documentation will save duplication of effort that equates to time and money in any project.

Step 3: Prepare an Action Plan

With the completion of the reconnaissance survey and research, the team is ready to prepare a plan of action. This plan should include setting goals, recruiting volunteers, finding funding, and establishing safeguards and security measures for resources and workers.

Setting Goals

Perhaps the most important first step in preparing the action plan is to delineate and prioritize goals. This will bring the project into focus and clarify which actions are the most pressing. In the process of setting goals, address the following questions. What are the project's priorities? What type of workforce is needed? Can volunteers provide some of the work? What is the minimum that needs to be done to stabilize the cemetery? Will a preservation planner be helpful? After answering these initial questions determine short and long term goals.

These are examples of short-term goals that might be included in an action plan:

1. Form a "Cemetery Friends" group (see The Association for Gravestone Studies' Guide to Forming a *Cemetery Friends* organization).
2. Make a Master Plan.
3. Identify funding sources.
4. Hire a coordinator if needed.
5. Create safety guidelines for both workers and material artifacts.
6. Clarify legal considerations to determine liability for both volunteers and visitors.
7. Address security, vandalism, and theft issues.
8. Retain the original form and fabric of the burial ground by adopting the Secretary of Interior's *Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Properties.*

9. Analyze current conditions. Follow up by emergency stabilization of markers and landscape. Once features that may be unsafe have been uncovered, such as loose headstones or deteriorated roads, incorporate these items as priorities in the master plan.
10. Determine which professionals will be needed and at approximately what stages. Make a list of recommended experts.
11. Conduct an intensive level survey of the site using photography, mapping, and forms to document markers, buildings, and landscape. At this point plan to delve into the history of the site to uncover cultural traditions, changes over time, and site features such as historic plant material or buildings.
12. Undertake initial cleanup of the cemetery.
13. Expand public awareness.

Examples of long-term goals:

1. Clean and conserve all markers.
2. Evaluate and repair ancillary features.
3. Prepare a plan for landscape preservation and future maintenance using appropriate materials and techniques.
4. Continue research.
5. Provide educational tools such as tours, lectures, brochures, a newsletter, information posted on the community web site, and documentation of findings in the local library.
6. Prepare regulations concerning site management.
7. Enact a local cemetery or historic cemetery ordinance if none exists.
8. Designate the property as an historic site.

Step 4: Establish Funding

After delineating goals, begin the search for funding sources. First, solicit support from the owner/governing body of the cemetery. Perhaps the governing body will agree to channel the needed funds into the project; however, it will usually be necessary to supplement any small amount provided by an owner or municipality. When no association or municipality will be responsible for managing funds it is important to create an organization that can serve this purpose.

To help with both plans and funding, there are several organizational options to be considered:

- Establish an organizational hierarchy with well defined responsibilities.

- Establish the group as a non-profit Cemetery Association or Cemetery Maintenance District (see Saving Graves web site, an international organization committed to the preservation of historic cemeteries).
- Become a tax exempt entity. (See Saving Graves web site)
- Open a checking account.
- Obtain a tax ID number.
- Consider establishing an endowment account to fund ongoing conservation and preservation efforts.

For a project to reach its potential a budget must be prepared and maintained. Designate a responsible person or entity to handle finances. By operating in a businesslike manner those wishing to donate can do so with the assurance that there is a stable process in place for the allocation of donated funds.

There are many ways to raise both large and small amounts of money for a project. Having the support of the local authorities or historical society is beneficial. Fund raising, enlisting workers and raising awareness are related components of the total project. From the beginning establish "partnerships" with local groups and organizations for potential sources of money, expertise and hands on labor. Some partnership suggestions are:

- The local historical society.
- Programs such as "Adopt a Cemetery" or "Adopt a Statue" where one or more groups become responsible for continued care or a financial commitment.
- Approach the developer of a local real estate project. Sometimes there are requirements that the developer "give back" to the community. This might be a source of essential "seed money" to get the project started or a way to fund a large improvement, such as restoration of a fence or statue.
- A local college may have programs in historic preservation, landscape architecture, archaeology, or history that could provide advice and students for work projects.
- Approach local businesses and corporations for funding and "in-kind" donations of products.
- Enlist local Boy Scout or Girl Scouts to volunteer for projects to earn community service badges.
- Groups such as local genealogy societies, Daughters of the American Revolution, and Veterans of Foreign Wars may be interested in volunteering.
- Local school groups.
- Pro bono contributions from lawyers, CPAs and other professionals.
- Explore the use of volunteers as an "in-kind" match for grants.
- Families of those buried in the cemetery.

By enlisting the help of a local real estate developer, Canton Township was able to replace a worn and broken cyclone fence with a safe, aesthetically pleasing aluminum fence at no cost to the township parks department, which maintains the property.

In addition to the above, seek large benefactors. Appealing to local business owners, corporations or a civic-minded philanthropist could provide for on-going financial assistance. Having non-profit status, (501)(c)(3), is a must for raising money from corporations and foundations as it allows them to use the contribution as a tax deduction (*Fundraising for Non-Profit Groups: How to get money from foundations, and government*, p. 20).

When seeking funding, grants are another avenue to pursue. Obtaining grants for the project could begin with visiting the Funding Research Guide at the Saving Graves web site. A *Foundation Directory* is available at the Grant Information Center of many large public and university libraries. These participating libraries offer access to the Foundation Center web site without charge. This site is privately accessible for a fee. This directory provides information on the types of projects that are funded by each agency. Other sources of grant funding information are: the *Corporate Giving Index*, which specifies the focus of each business's corporate donations, and the *Michigan Foundation Directory*. Most granting agencies will want assurance that the organization is able to raise money locally, some may require matching funds. Be sure to target those funding agencies that have an interest in the type of project proposed and that sponsor projects in the local area.

Check with local foundations for grant awarding possibilities. Some cities have a Community Foundation that awards grants for specific purposes. Regional foundations, such as the Southeastern Michigan Community Foundation, provide grants for arts and humanities projects in specified geographic areas. Local groups such as Questers (an organization that performs community service projects focusing on local history and culture) often provide grants for projects that relate to history and antiquities.

Communities that are participating in the National Park Service's Certified Local Government Program (CLG) are eligible to apply for competitive grant funds through the State Historic Preservation Office (SHPO) in the Department of History, Arts and Libraries (HAL). For more information on Michigan's CLG grants and on other governmental organization grants visit the State Historic Preservation Office on the web at *www.michigan.gov/shpo*.

Although some grants may require a lot of paperwork, others do not. All have definite deadlines for submission. Most granting agencies require the following information:

- Background information – name, purpose, board of directors, copy of the operating budget, and IRS letter of determination (federal tax-exempt status 501(c)(3). (See Saving Graves web site)
- Assurance that the group has been in existence for at least two years.
- Names of key people involved in the project.
- Letters of support from affiliated agencies such as: State Historic Preservation Office, National Trust for Historic Preservation, Michigan Historic Preservation Network, and The Association for Gravestone Studies.

Many agencies offer conferences and seminars on writing grants. The Association for State and Local History offers a grant writing session at their annual conference. The Michigan State Housing Development Authority (MSHDA) and continuing education programs offered through colleges and universities also offer grant writing courses.

Step 5: The Work Force

Well-trained volunteers bring both enthusiasm and hands-on assistance to the venture; however, as the process advances beyond the preliminary effort, it is recommended that a coordinator, preferably a paid position, lead the effort. It is a large undertaking to see that the formal preservation plan unfolds smoothly while coordinating funding, volunteers, and professionals. An organizational person is necessary to set timetables, train volunteers, follow up on various projects, and in general keep everything on track. This person can also coordinate volunteers and their efforts in the cemetery.

Before anyone is allowed to work in the cemetery it is a good idea to have written, specific rules and regulations. Specifying "dos and don'ts" protects workers, the project coordinator and the historic property. Some guidelines for volunteers are:

- Never go into the cemetery alone. There is always the possibility of a falling limb or other unforeseen accident.
- Bring a first aid kit and cell phone, and tell the person in charge what project will be done and when it will be done.
- Wear long pants, a long sleeve shirt, gloves, and sturdy shoes to prevent harmful plants, insects and other wildlife from harming you. Bring insect repellant and put anti-bee sting medication in the first aid kit.
- Be on guard for broken glass, sharp stones, and rusty metal. In the case of any injury that breaks the skin, a tetanus shot needs to be updated if the last one was over five years ago.
- If possible point out any known toxic plants in the cemetery. Poison ivy and oak especially like to grow on fences and trees. An awareness of what they look like and protective clothing are helpful.
- Avoid working during the hottest part of the day, wear sunscreen, and have water available.
- Pay attention to the area traversed. A sunken grave, wet stones or vegetation in the path might precipitate a fall.
- Use proper lifting techniques when working with stones. For heavy stones use a tripod with heavy-duty chain, winch and straps.

Volunteers

Volunteers can be used for the initial cleanup of the cemetery. Cleanup is often the activity that has the greatest attendance and is best publicized. It is also where a significant amount of damage can be done to the landscape by well-intentioned volunteers and staff members, who fail to appreciate the historic context and burial practices of the past.

In the initial cleanup, the first important consideration is to protect and preserve that which has survived on the site. A very conservative approach should be taken. Something as simple as the removal or reuse of rocks found in a cemetery could alter the integrity of a particular area. Rocks, like plants, were often used as markers of loved ones' gravesites. Sometimes a large stone would be placed at the head of a grave with a smaller one at the foot. In other instances fieldstones were used to outline the grave. During the initial cleanup only removal of litter such as large branches and trash (broken bottles, cans, and paper) should be done. **Do not mow the grass, or remove plants, broken headstones or any type of marker.**

All volunteers should receive some training before working in the cemetery. Training volunteers through workshops, or an extended workshop, is recommended. In Canton Township volunteers from Civitan, Boy and Girl Scouts, historical societies, and students from local schools have participated in tasks such as tree trimming, removal of bushes, leaf clean up, grass trimming, and cleaning of markers. In Canton Township, Michigan, in conjunction with *Make a Difference Day*, a local Eagle Scout (aided by his parents and Canton staff) plotted Downer Cemetery into ten foot- by ten foot squares, recorded all data, and photographed the cemetery. The project took over two hundred hours to complete and as a result, all of the semi-covered and covered stones were located and a complete photographic record of the cemetery was made.

Documenting gravestones by photography, mapping, surveying, and the completion of a form for each grave requires patience and precision. Probing for and cleaning gravestones takes special knowledge and requires specialized skills. In the long run, money will be saved if volunteers have an in-depth orientation to each task. If the community does not provide workshops, there are various organizations that offer them: the Chicora Foundation, the National Park Service, the Center for Historical Cemeteries Preservation, Indiana Pioneer Cemeteries Restoration Project, and the Association for Gravestone Studies, that has a yearly conference that includes workshops. Contact these organizations for more information. With education, the volunteers will gain enough information to discern which tasks can be accomplished and those which must be left to a professional.

Hiring Professionals

Depending on the size of the cemetery, the extent of the damage, and the need for restoration, professional help may be required in addition to volunteers. A historic preservation consultant with planning experience may be the first professional that is needed in order to give a condition assessment, formulate a plan, set priorities, and protect the historical integrity of the site. Other professionals that might be considered are horticulturalists, archeologists, landscape historians, historic site engineers, structural engineers, architectural conservators, restoration artisans, monument dealers, and if the cemetery is within a municipality that cares for burial grounds, the Department of Parks and Recreation. The State Historic Preservation Office maintains a list of architects that specialize in work on historic buildings. They may be able to offer assistance as well in locating professionals with appropriate expertise for the project. The Michigan Historic Preservation Network (MHPN) offers a list of contractors belonging to its Construction Trades Council.

Points to consider when selecting a conservator:

- Inquire about qualifications, types of insurance, experience with similar cemetery conservation projects and membership in the American Institute of Conservators (AIC) or other professional conservator groups.
- Ask about the size of their firm, length of time in business, employee training and experience, and supervision of employees.
- Be sure that the conservator is willing to provide documentation of the work being done. Ask that photographs be taken before, during, and after the work. Be sure that all of the products used are specified in written work orders and estimates, and that Material Safety Data Sheets (MSDS) are supplied.
- Develop a timeframe for the project and get it in writing. Discuss with the conservator what will happen if the project takes longer than anticipated or if there are cost overruns.
- Discuss any concerns the conservator might have, such as overnight site security, questions about utilities or permits.
- Ask if the conservator is willing to train others involved in the project, such as cemetery staff or volunteers. Are they willing to return for routine maintenance? What sort of actions will be taken in the event of a repair failure?
- Be sure to indicate that all OSHA regulations must be followed. Indicate that it will be necessary to use appropriate safety equipment to minimize the risk of accident or injury.
- Inform a contractor that because of the fragile nature of the landscape in which preserving old plants, buildings and markers is a priority, the work in a historic cemetery is handled differently than a residential account.
- Let contractors know that it may be necessary to delay conservation or maintenance in the event of a funeral or burial.

The quality of work that is received from the contractor is directly related to the concerns discussed before the work begins. Be certain to indicate the standards that will be used to judge the completed work, and in most cases the extra effort will be worthwhile. Getting a bid from more than one professional is a good idea.

Step 6: Listing in the National Register of Historic Places

If listing the cemetery in the National Register of Historic Places is considered, contact the state National Register coordinator. The State Historic Preservation Office (SHPO) web site lists the criteria that must be met in order to list a property in the National Register. A summary of the criteria as they relate to cemeteries is:

- **Criterion A:** Properties can be eligible for the National Register if they are associated with events that have made a significant contribution to the broad patterns of our history. A cemetery might be eligible for listing in the National Register under Criterion A in relation to events for various reasons– for example, if it contains the graves of many of the community's early settlers where other properties, such as the early settlers' houses no longer survive to represent this period of the community's history; if it is important for its association with an ethnic group or settlement important in the community's history; or if it is associated with one or more important events, such as a mining disaster that resulted in a substantial number of interments.
- **Criterion B:** Properties can be considered eligible under Criterion B if they are associated with the lives of persons significant in our past. The persons with whom the burial place is associated must be of outstanding importance to the community, state, or nation.
- **Criterion C:** Properties can be eligible for the National Register under Criterion C if they embody the characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. A cemetery may be eligible under Criterion C as a representative example of a cemetery whose layout and features reflect an important movement in landscape design, such as the Romantic Movement; as an important example of the work of a significant landscape architect or designer; because of the architectural and / or artistic importance of the funerary architecture and / or art present there; or because the cemetery as a whole possesses significance because the entire cemetery, including its planning and landscaping, and its architecture and monuments display high artistic value.
- **Criterion D:** Properties can be eligible for the National Register if they have yielded, or may be likely to yield, information important in pre-history or history. Burial places may be eligible for their potential to yield information about cultural and ethnic groups and burial practices. Such information is generally obtained through archeological investigation.

Contact the SHPO if you are seeking to nominate a cemetery to the National Register. Nomination forms are available at no charge from the State Historic Preservation Office (SHPO) or the National Register of Historic Places. Michigan's SHPO submits all nominations of properties in Michigan– except federal properties– to the National Register. Submitting a *National Register of Historic Places Preliminary Questionnaire* is the first step in nominating a cemetery property to the National Register. The questionnaire is available

(PDF format) on the Michigan SHPO web site. The SHPO staff will review this form and offer an opinion about the property's eligibility.

If the cemetery is deemed eligible by the SHPO, the next step is preparation of the nomination forms and accompanying documentation for submission to the SHPO. Once the final version is approved by the SHPO, it is presented to the State Historic Preservation Review Board for its approval before being submitted to the National Register, National Park Service, U.S. Department of the Interior, for formal listing in the National Register of Historic Places. Forms are available on the web site or by mail by writing to:

State Historic Preservation Office
Michigan Historical Center
Box 30740
720 W. Kalamazoo Street
Lansing, Michigan 48909-8240
preservation@michigan.gov

Chapter 2

SURVEY METHODOLOGY
AND DOCUMENTATION

OVERVIEW OF CEMETERY DEVELOPMENT

The following overview of cemetery development is intended to put the historic cemetery in context as a beginning point for documentation. Cemeteries, along with grave markers, changed as a result of the evolution of society's religious and cultural attitudes toward death. Understanding how the cemetery changed over time will help to place it in its historical context.

In America whenever an area was newly settled, whether in New England or Michigan, the need for burial soon followed. The deceased was usually buried near the place of death and often in an unmarked grave. America's earliest burial grounds were not attractive, tranquil places. Graves were not located in neat rows and maintenance was minimal. Sometimes cemeteries were located on a piece of land that could not be used for farming. The grass was allowed to grow long and animals grazed on the site. It was a utilitarian place, a highly visible reminder to everyone of the brevity of life and the uncertainty of the afterlife. When settlements had progressed beyond the pioneer stage burials became more ritualized.

The family burying ground, with its tall, flat, rectangular stones, was a familiar sight in rural areas, as was the churchyard or community cemetery in villages or township centers.

Often cemeteries that began as family burying grounds later were deeded for use as community cemeteries. The evolution of styles can often be seen. Others, however, were originally platted as cemeteries and had an administrative body for the day-to-day management.

While Michigan was still in the process of settlement during the early 1800s, the Rural Cemetery Movement had already begun in the eastern United States. Several factors led to the development of this movement. One of these factors was public health. Increased urbanization and its accompanying population density caused problems with the air and water in large cities and resulted in epidemics of small pox, cholera, diphtheria, and other life threatening diseases. It was believed that cemeteries contributed to the contamination of the water supply. New cemeteries were thus located on the outskirts of urban centers. (*Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries*, p. 6-7)

A second factor in the development of the Rural Cemetery Movement occurred as cemeteries were being relocated to the urban fringe; the new generation of cemeteries became planned landscapes. Among the first planned cemeteries were New Haven's New Burying Ground and Pere Lachaise in Paris. New Burying Ground was nonsectarian and free from church and municipal management. Features that were copied by later cemeteries:

- locations outside the city in order not to be a health hazard
- geometric pattern layout
- family plots
- roadways wide enough for carriages
- planted with trees (poplars and willows)

A third factor was the rise of the Romantic Movement in Europe. The Romantic Movement was a revolt against the eighteenth century's cultural emphasis on rationality and order in favor of a "romantic" appeal to the senses in the later eighteenth and nineteenth centuries. It was characterized in literature and the arts by liberalism in form and subject matter. It emphasized feeling and originality, and an interest in nature, medievalism and the mystical. The Romantic age influenced all the arts and eventually filtered down to cemetery design. In cemetery design this translated into the development of a picturesque aesthetic that encouraged maintaining and enhancing the natural environment rather than overcoming it.

Mount Auburn Cemetery in Cambridge, Massachusetts, established by the Massachusetts Horticultural Society in 1831, is generally considered the first of the new

generation of Romantic Movement rural cemeteries in the United States. Mt. Auburn was unique in that it was designed to encourage public use for healthful recreation. Its design served as a model for the "pleasure grounds" and public parks built in the late nineteenth century. Key principles that were later imitated:

- it was outside the city limits in a rural area
- park-like character with an informal plan and winding roads that took advantage of topography, natural features and trees
- emulated romantic character of estate design popular at the time
- careful balance of art and nature through use of architecture features and view sheds
- served a quasi-public function (*Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries*, p. 7-8)

Most larger non-Catholic cemeteries established from the 1840s to the 1870s emulated Mt. Auburn in their picturesque planning and landscape. With the evolution of the designed cemetery the earlier term "burial ground" was replaced with "cemetery" from the Latin "to sleep." In 1869 New York art critic Clarence Cook agreed with Andrew Jackson Downing, a horticulturalist and author, in that cemeteries were "all the rage." They were "famous over the whole country and thousands of people visited them annually." (Tishler, p. 121)

Spring Grove Cemetery in Cincinnati, Ohio, marks the beginning of another development in cemetery planning, the "lawn-park cemetery." Spring Grove Cemetery was originally developed in the rural cemetery style in 1845. A change of administrators in 1856 brought about a change in design philosophy and Spring Grove began to evolve in the lawn-park cemetery style under the direction of Adolph Strauch. The lawn-park cemetery had more structured regulation than rural cemeteries. It eliminated the use of small features and family plot boundaries in favor of an open sweep of green lawn with plantings organized to frame or create vistas. Strauch's ideas, for what he called the "landscape lawn plan," influenced cemetery design for the next half century. (Linden, p. 16 and p. 30)

Lawn-park cemeteries were characterized by:

- a balance in formalism and naturalism
- elimination of fencing and fewer, larger monuments rather than a "forest" of large and small monuments
- the use of grouped ornamental planting to frame large expanses of lawn, lakes and monuments to create vistas (Tishler, p. 121-122)

Technological advances, among them the invention of the lawn mower, led to progressively simpler cemetery designs. The memorial park cemetery, which gained popularity in the mid to late twentieth century, forbade the use of upright gravestones, in favor of small flat markers imbedded in the ground. These cemeteries were typically privately owned and well maintained. In the twentieth century cemeteries were designed by cemetery professionals rather than landscape architects and / or horticulturists. Forest Lawn Cemetery in Glendale, California, (1916), is an example of evolving cemetery design. It is considered America's first memorial park cemetery.

Characteristics of memorial park cemeteries:

- Highly planned and regulated
- Monuments are flush with the ground
- Emphasis on lawns
- Sense of openness and spaciousness
- Minimal decorations with few buildings, features or plantings
- Plantings are backdrop for large memorials that emphasize community rather then the individual. ("Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries", p. 10)

After World War II, as the population became more mobile often leaving no family members to care for graves, the professional maintenance and "perpetual care" offered by privately owned memorial parks helped result in their proliferation.

SURVEY AND DOCUMENTATION

1 2 There are two types of surveys. A **reconnaissance survey** is a quick overview of the site, done simply to note significant features on a map and to get a general understanding of the cemetery's design or layout. The reconnaissance survey serves as the foundation for the second type of survey, the more in-depth, **intensive level survey**. An intensive level survey requires researching the site and documenting individual features. A survey is comprised of two elements: research and fieldwork. Fieldwork entails taking a thorough look at the cemetery as it presently exists, noting and recording on maps and through photographs all pertinent features within its boundaries. Research requires gathering historical and present data to document the cemetery's history, its landscape, and its artifacts. The survey process consists of:

- Research and compiling data
- Mapping
- Photographing
- Recording information on survey forms

Research and compiling data

Research consists of investigating a variety of sources of historic data:

- Microfilm copies of old newspapers and other data at local libraries and historical societies
- Deed books at the county register of deeds
- Local and county histories, atlases and maps, and genealogy information
- Records of the cemetery association and/or a church associated with the cemetery
- Archive and library collections such as those in the State Archives of Michigan and the Library of Michigan in Lansing, the Bentley Historical Collection in Ann Arbor and the Burton Historical Collection at the main Detroit Public Library

Data collected is not only an important historical record, but can be used for future planning and maintenance of the cemetery. The documentation should be collected in a systematic way, presented in a professional format and be accessible to both professionals and lay researchers. Appendix A contains the forms recommended by the State Historic Preservation Office for surveying the cemetery as a whole, individual gravestones, and vegetation. These forms can be copied for field use. Afterward the information that is gathered should be entered into an electronic data base.

Surveying the Cemetery's Features

Looking at a landscape through the eyes of both a historian and a horticulturist will help put together the pieces of the cemetery story. Ask the following questions:

- Was the site originally located in a small village, in a rural area, part of a crossroads hamlet, settled by a particular ethnic group, or part of a religious site?
- Where is the cemetery sited? On a rolling countryside? Is the site plain and sparsely planted, or is it covered by a canopy of mature trees?
- What are the basic elements of the cemetery's design or layout? Does it have the romantic elements of Victorian era cemeteries, such as picturesque rolling terrain and artistically designed monuments? Does it show the characteristics of a lawn park cemetery?
- Is it a designed landscape?
- When was the cemetery established?
- What are the dates of additions?

Often the organization or agency in charge of the cemetery's maintenance will have maps showing the existing boundaries and plan. Both old and new county atlases often show

the boundaries of cemetery parcels. If early maps exist, they may help with the analysis of the cemetery's development.

- The survey process requires a site analysis that results in a record of the physical features of the cemetery. *National Register Bulletin No. 41: Guidelines for Evaluating and Registering Cemeteries and Burial Places* (available from the National Park Service) recommends that "Characteristic plant materials, layout of burial plots and circulation features, acreage encompassed, and the purpose or function of areas and features within the site boundaries also are important." The following list of features to be documented is taken from the National Register *Guidelines*:
  - general topography, including slope and elevation, both within the burial ground and in relation to its larger setting;
  - natural features such as streams, hills and native vegetation, and naturalistic features such as ponds, lakes and land forms;
  - plat, or layout of cemetery plots, whether a rigid gridiron imposed on the site or an organization of plots conforming to natural contours;
  - circulation system of roads, driveways, pathways, noting whether such features have axial alignment or are winding or curving; structural features of the system, such as bridges and drainage systems; and distinctive materials, such as cobble gutters or stone paths; views and vistas within the site from principal access points; views and vistas external to the site;
  - characteristic vegetation, including overstory of trees, understory of shrubs and grasses, exotic plant materials used as filler in burial plots, ornamental flower beds, and specimen plantings;
  - gateways, fences, and hedges used for boundary and spatial definition;
  - typical plot defining features such as wooden palings, iron fencing, and concrete curbing;
  - prevalence of individual plot mausoleums, vaults, or above-surface tombs, and indication of the range and variety of individual grave markers;
  - entrance signs, directional markers, outdoor lighting features, and small-scale site furnishings such as benches, planters, ornamental sculpture, and fountains;
  - maintenance and service features such as soil disposal and waste storage areas, greenhouses, tool sheds, and pump houses;
  - buildings such as churches, memorial chapels, gate houses, offices, residences, crematories, mausoleums, and columbaria. (Walton-Potter, Elisabeth, and Beth M. Boland, p. 2-3)

By recording the features listed above, a picture of the cemetery, changed over time, will evolve. The most basic and useful forms of documentation are photographs, survey data forms and a map of all features showing their location.

Interpretation of the site and plans for future use should be based on this information. The Association for Gravestone Studies (AGS) leaflet, titled *Analyzing Cemetery Data*, may be helpful in interpreting some of the information that is collected. When cemetery documentation is complete, the local library and AGS should receive copies. See Appendix A for sample forms.

DOCUMENTING THE VEGETATION

With the initial research complete and after defining the site perimeter, one of the first priorities is assessing and documenting vegetation. Preserving plant life is a very important part of cemetery conservation. Looking at some of the plantings through "modern" eyes may cause you to overlook old species that are indeed heirloom varieties. Look beyond the plantings that you recognize. Since most species were introduced during a specific time period, looking at garden books featuring historic plants or old and new seed catalogs may help to document "changes over time" in the cemetery. Common plantings found in Michigan cemeteries might include roses, sedum (the historic variety known as "live forever"), myrtle, pinks, lilacs, iris, and lilies. These old varieties can be very different from today's hybrids. It is also important to remember that some of these plant memorials were symbolic. For example, the lily is associated with purity, the rose with love, and ivy with immortality and fidelity. Trees were associated with meaning, too. The cedar tree was associated with strong faith, evergreen trees with immortality and the willow tree with grief and death. These plantings were part of memorializing those that are interred in the cemetery and should be preserved. In order to preserve historic plant material, documentation should be done before any clean-up or routine maintenance is performed, or before professionals begin work.

During the reconnaissance survey, the examiner may have noted plantings near gravestones or along the fence line where historic plants have spread and survived because the lawnmower couldn't reach them. A more intensive survey and documentation of plant life needs to be undertaken over three seasons, spring, summer, and fall, to make sure both early and late bloomers are found. Look around gravestones, along both the inside and outside of fence lines, beneath shrubs, in compost / refuse piles, and at the base of trees for historic plants. Record their location on the site map.

A plant historian, master gardener, or plant biologist may be helpful at this point. If a historic cultivar is found, it would be worth having a horticulture specialist identify it to preserve both its historical integrity and biological diversity in the cultural landscape. A local college or university may have a horticulture-related staff member who would be willing to donate time and expertise. The Michigan State University Extension Service could also be helpful.

Record each plant type found in the cemetery with photograph and survey form. Modern plants should also be documented.

The form to document the cemetery vegetation is included in Appendix A. It includes:

- Date of observations (over three seasons if possible)
- Plant genus, species, and common name if known
- Size
- Color
- Condition
- Photographic documentation
- Location on cemetery base map
- Reference number to coordinate photograph, map, and plant list / form
- Historical significance, if known (symbolism, family significance or planted to represent an event)
- Evaluation of integrity and significance. Is the plant rare or an old variety? Was the tree planted to commemorate an important event in the community? Does the plant material have an ethnic or symbolic relationship? Was the person buried in the plot once the owner of a local nursery?

While a cemetery may not be the work of a famous landscape architect or master gardener, its horticulture can give important clues to its history and culture, and is a way of honoring the deceased. Scott Kunst, landscape historian, suggests that when documentation of plantings is complete, a plant palette of plants common to area cemeteries, such as "Canton Township Cemetery Plants," could be made. Knowing what species of trees are planted will also help plan for the future development of the cemetery. For example, the presence of acidic trees, such as pine and oak, can be detrimental to marble and limestone markers. Some cemetery associations, such as Canton Township's Cherry Hill Cemetery Association, have adopted a policy of pre-approval of plant material and its location in order to keep roots from interfering with the graves. Several books and web sites that aid in plant identification are listed in Appendix B.

EVALUATION OF THE MONUMENT

Evaluation of the monument is a four part process that requires the documentation of the material used, the form of the stone, carvings and the inscriptions. This evaluation produces information regarding the age of the stone. It may also reveal whether or not the stone was carved by hand or whether mechanical techniques were used. Research may also disclose the cultural preferences of the area and era in which the monuments were erected.

1. Materials

Many early settlers of Michigan emigrated from New England and New York bringing their cultural traditions with them. These traditions greatly influenced Michigan's early burial practices. As in New England the earliest burials were very simple. The deceased was buried in the family plot or local burial ground with very little ceremony, reflecting the Puritan ethic.

By the time Michigan was being settled in the early nineteenth century, stone markers were common in New England, and early Michigan settlers brought this stone monument tradition with them. The early stone monuments in Michigan were often limestone. This material was relatively soft and easily carved by hand. However it deteriorated easily, and in an effort to use a more durable material marble became popular. White marble, available from sources close to home, was universally popular from the 1830s until the 1850s. With the advent of the railroad in the mid-nineteenth century, stonecutters were able to obtain non-indigenous materials such as "blue" marble from Vermont. However, it soon became apparent that marble, too, was soft and subject to weathering. After the Civil War improvements in quarrying technology and machine tooling made granite the material of choice. Granite was available from many sources, including Vermont and Missouri. It was also indigenous to Michigan, available in many colors including Wisconsin Crystal Grey from Iron Mountain, Michigan.

New materials also began to appear after the Civil War, among them "white bronze," more accurately zinc, a bluish grey non-magnetic, durable metal. According to Barbara Rotundo, the author of *Monumental Bronze: a Representative American Company*, almost all historic cast zinc (white bronze) monuments came from the same source, the Monumental Bronze Company of Bridgeport, Connecticut. The company had subsidiaries in the U.S. and Canada but, according to Rotundo, it is not known whether these plants actually cast the metal or whether they simply joined the sections pre-cast in Connecticut. Monumental Bronze Company operated from the mid-1870s to the late 1930s and opened its first subsidiary in Detroit in 1881. This subsidiary was known as the Detroit Bronze Company and the markings from this company appear on numerous Michigan monuments. Zinc

monuments were both inexpensive and durable and have generally worn well over time. The epitaph or inscription on a "white bronze" monument was cast at the foundry and could be chosen from a list provided by the manufacturer or created by the purchaser.

In addition to individual monuments, zinc was also used for large commemorative monuments. Whether individual markers or commemorative statues, all monuments were custom made after being ordered from a catalogue. Several Michigan communities have "white bronze" statues and monuments in their historic cemeteries. A particularly well maintained and excellent example is the Civil War monument located in the Lake View Cemetery in Quincy, Michigan. It bears the foundry marking "Detroit Bronze Company" and is similar in appearance, to the more expensive monuments found in Dexter, Jonesville, Coldwater, Milan, and numerous other Michigan cities. A community, like Quincy, with a strong amount of patriotic zeal, but a small cash flow, was able to commemorate its local heroes in the same grand style as more affluent communities. Even though these monuments were less expensive, they have frequently endured time much better than some of their more expensive look-alikes.

In addition to individual markers, large statues were made of zinc.

Markings identifying the manufacturer are often found on the base of the marker or statue.

2. Forms/Shapes

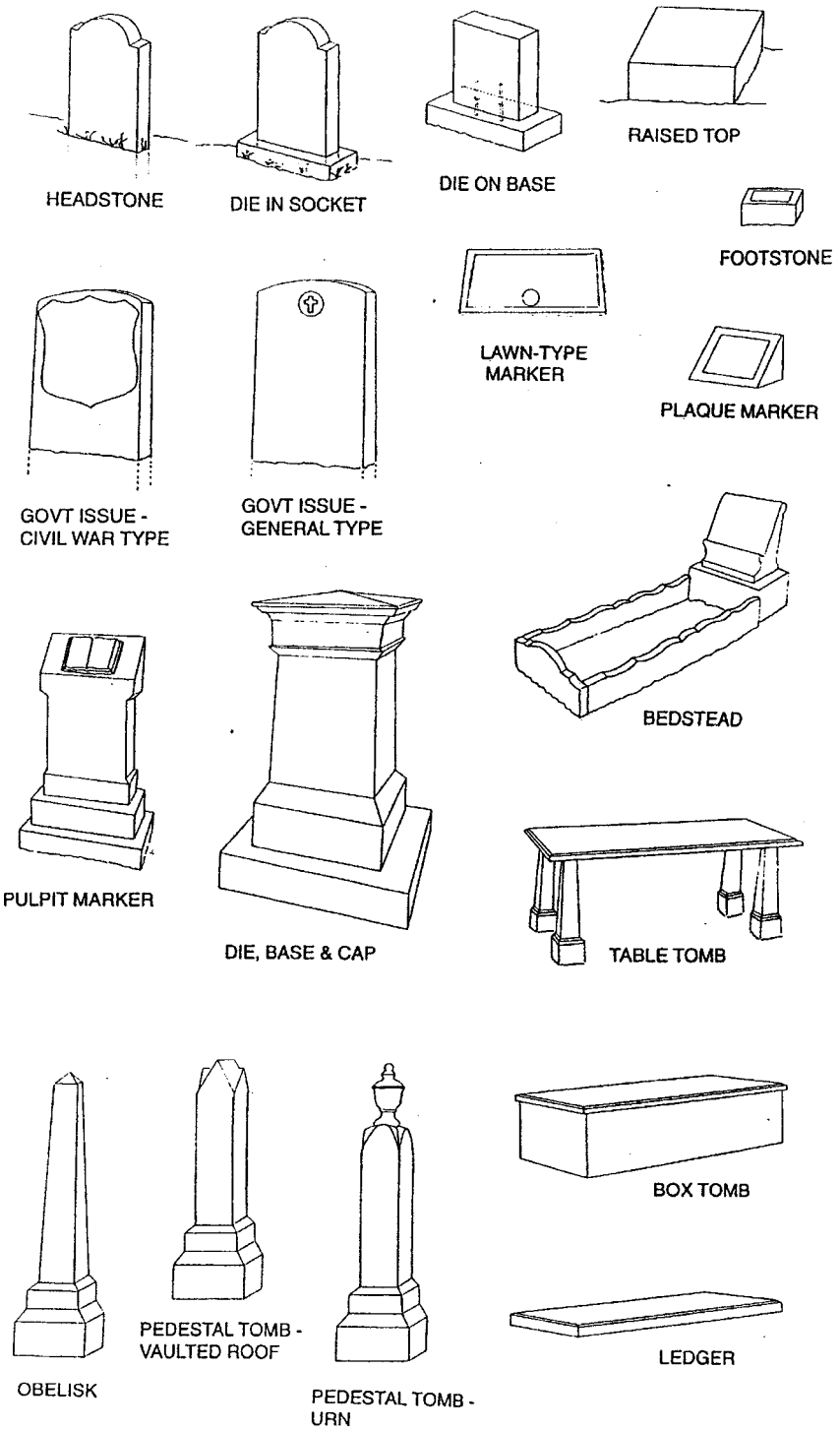
In the early nineteenth century, when Michigan was being settled, headstones were simple rectangular or cambered (curved at the top) shapes. As settlers became established and prosperous, after the mid-nineteenth century, they wanted more elaborate carving and gravestone shapes. Large, three-dimensional, more decorative monument shapes became increasingly common and the carving became more elaborate. Developing technology and transportation improvements allowed for national distribution of monuments. By the late nineteenth century local stone carvers were able to order pre-cut monuments in popular shapes directly from the quarry, and the customer could order from catalogue sources such as Sears Roebuck and Montgomery Ward. Catalogue markers helped to standardize the design of gravestone shape in small cemeteries.

In the last half of the nineteenth century headstones became more ornamental. Three-dimensional shapes were more frequently seen, especially obelisks, pedestals, square planned shafts, and columns. The Romantic Movement, which swept through England and Europe, had spread to America and was influencing literature, art, even headstone design. Gothic (pointed arch) and Romanesque (broad rounded arch) elements taken from medieval themes became prominent in headstone shapes. At the end of the twentieth century laser carving technology was adapted for headstone design. Not only does this allow for very personalized designs including transferred photographs and other biographical information, it also allows for unusual shapes of headstones such as hearts, diamonds, and even semi-trailer trucks.

In the twentieth century, when the lawn park cemetery design became prevalent, headstones, while still three-dimensional, were often smaller in size and simpler in design. Typical twentieth century headstones are rectangular granite markers of varying colors, with epitaphs becoming less common. The memorial park cemetery requires that headstones be flush with the ground for easy maintenance. These markers are usually bronze or a bronze plaque attached to a stone base used because of its durability.

The following headstone shape chart from the Chicora Foundation identifies the most common shapes used for monuments. A copy of this drawing should be provided in fieldwork packets.

QUICK FIELD GUIDE TO MONUMENT TYPES



Though the types of monuments vary greatly, this field guide can serve as a tool to help identify those monuments found in the cemetery. Reprinted with permission by the Chicora Foundation.

3. Inscriptions and Epitaphs

Documenting

An inscription includes all the words and numbers on a gravestone, whereas the epitaph is usually a religious or literary phrase or saying that commemorates the deceased. *Incised* inscriptions are carved into the surface of the stone. *Relief* carving is raised or projects forward from the surface of the stone.

> Different styles of lettering were popular at various times. *Roman* lettering went in and out of fashion. *Roman* lettering fail (sic) out of favor during the early 19th century, when italic lettering became the choice for inscriptions. Due to the ease in reading *Roman*-style lettering, even after weathering, it came back into fashion at the dawn of the Civil War. Both *Roman* and italic lettering from the 19th century was inscribed or cut into the stone. By the 20th century, more raised lettering appeared due to technological advancements in stone carving. (*Grave Concerns, a Preservation Manual for Historic Cemeteries in Arkansas*, no pagination)

The inscriptions on early stone markers were often minimal, usually the name or just the initials of the deceased, his age, and year of death. Later inscriptions were more likely to include the full name, with the month, day, and year of death. Soon inscriptions included epitaphs that often were Latin phrases such as *Memento Mori* (Remember that you must die). (Duval and Rigby, Introduction, p.viii).

Earlier epitaphs, found in New England, reflected the Puritan's belief in predestination and that most humans were destined for Hell. This dire view of life was seen in epitaphs like the following, serving as grim reminders that death would overcome all. (*Deetz*, p. 98)

My youthful mates both small and great
Come here and you may see
An awful sight, which is a type
Of which you soon must be

The aim of later inscriptions, and the type more commonly found in Michigan, was to express the grief of those left behind, and reflect an effort to console and uplift the mourners. (Meyer, p. 249) Epitaphs had evolved from the Puritan dark and dire warnings to the living, to the 1860s cultural tradition aimed at comforting the sorrowful. By then death had come to be viewed as a pathway to a better life. The following is an epitaph on the headstone of a fifteen year old girl (1855) in Canton Township's Cherry Hill Cemetery:

In the morn of life she left us
And her vacant seat is here
Yet how fondly do we cherish
Every emblem of her near.

Epitaphs were often quotations from a religious source, literature, or an original sentiment in remembrance of a specific person.

4. Iconography/decorative carvings

As carved stones became common throughout New England, the same severe Puritan attitude seen in epitaphs was also reflected in the foreboding headstone carvings of winged death's-heads, skeletons, and skull and crossbones. This attitude was already changing by the time Michigan was being settled. The belief that man could earn his salvation through good works gained momentum, thus shifting the focus from hell and damnation to the more positive belief in the resurrection of the soul and eternal reward. (In *Small Things Forgotten* p. 95-98) The cherub motif, which evolved from the winged death's-head, exemplified this change in attitude. James Deetz asserts that the willow tree overhanging an urn is a direct stylistic descendant of the cherub.

In Michigan the earliest carvings were simple, such as the willow tree, which was popular from the 1830s to the 1870s. In southeastern Michigan the willow and urn may be seen separately. The willow as a carved motif and the urn, both a form as well as a motif, had a direct influence on Michigan stone carvers. The willow tree is seen in a variety of forms, and the urn is frequently seen alone and/or partially draped. Also commonly seen from around 1850 to the late nineteenth century was a finger pointing to heaven or hands clasped.

The motifs used on headstones may have several interpretations. The entire stone's inscription should be considered as a whole when interpreting meaning. One interpretation of the willow tree is that it was used to signify the Christian faith because of its ability to survive under the most difficult circumstances. Another was that the willow tree, with its weeping branches, represented the grief of those left behind. The hand pointing upward indicated that the deceased had gone to his/her heavenly reward. The hands clasped meant that God was welcoming the departed, or alternatively, the hope of meeting again in heaven. (*Brown*, p. 25) The finger pointing downward represents that the deceased has been called by God. (Hacker, p. 2 and p. 43) See a more complete list of symbols in Appendix D.

Carving was typically done locally or regionally by skilled craftsman. Motifs were circulated among members of carvers' associations and were used or adapted according to

the carver's skill. One example is the local carver, Joseph L. Arnet, founder of Arnet's Beckers Burrells Monuments (1903) in Ann Arbor. Arnet maintained a studio workroom where both hand and tooled carving were employed.

Ann Arbor stone carvers, among them Joseph L. Arnet of Ann Arbor (right), seated on a newly delivered block of granite ready for sculpting.

In the twentieth century headstones became simpler as society as a whole retreated from sentimentality of the Victorian era. As granite became almost exclusively used for gravestones, mechanized tools were required to work the stone because of its extreme hardness. As a result, carving became more mechanized with deeper lettering and at about the same time design catalogs became available. Thus headstone design became more standardized and simplified. (Linden, p. 107)

At the end of the twentieth century laser carving technology was adapted for headstone design. Not only does this allow for very personalized designs including transferred photographs, symbols of hobbies or interests of the deceased, and other biographical information, it also allows for unusually shaped headstones.

Modern carving tends to be less complicated then that of previous years. Modern technology has produced some very elaborate and often colorful memorials made to specifically address individual characteristics and personalities.

DOCUMENTING THE HEADSTONE

Documenting the four elements of each headstone is a critical part of the survey process. It forms the basis of the conservation / preservation master plan, and will serve as ongoing documentation of all work performed on each headstone. The information recorded is a permanent record. It is the documentation of the exact condition of the stone at a particular point in time, which will be useful in case of future theft, deterioration, or vandalism. Repairs made in the future will also be recorded on this survey form and thus it will serve as a working document for the monument. A headstone survey form can be found in Appendix A.

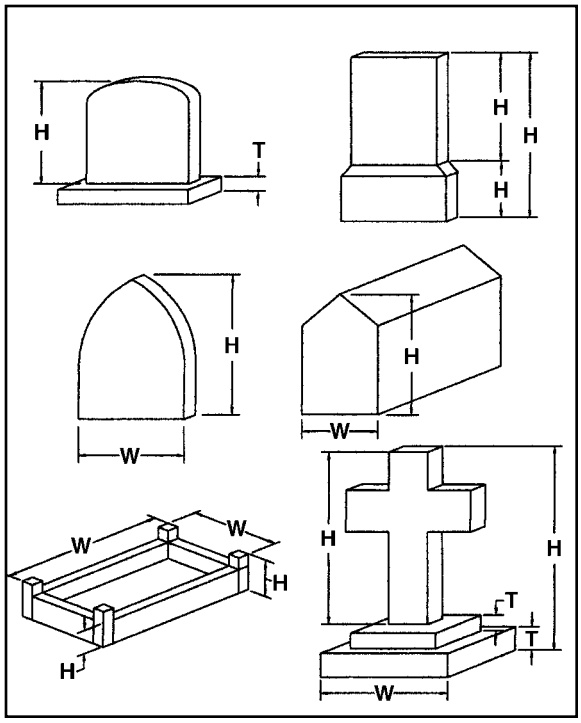
1 2 With training it is possible to utilize volunteers to conduct the monument survey. Prior to beginning fieldwork the volunteers need to be educated about the following:

- the proper method of photographing monuments
- how to use the monument documentation form
- how to identify monument shapes
- how to identify stone types
- describing headstone condition using common terminology
- how to document previous repairs
- techniques for reading inscriptions

When doing survey work it is both more efficient and easier to work with another person– one person to record and one person to photograph, measure, etc. The use of a clipboard and copies of the Michigan Individual Headstone Documentation survey form (Appendix A) will also speed the process. Using a pencil facilitates making changes and pencils will function well in cold weather.

MEASURING MONUMENTS

It is not possible to assess the size of a monument from a photograph; therefore, it is necessary to measure the height, width and thickness of each stone when doing the marker survey. For more complex monuments measure in several places. The drawing to the right has been adapted from the Chicora Foundation to show information needed to accurately measure monuments.



Full and accurate measurements are necessary information. Standardized criteria must be consistently used throughout the process. In this illustration several types of stones and the points of measurement are identified.

Condition

Carefully documenting the condition of each stone is important as this forms the basis of the conservation plan. Note all forms of deterioration, as well as all previous repairs. Employ the following vocabulary of common terms used in cemetery conservation when completing the headstone survey form. (These terms were culled from numerous sources e.g., *Grave Concerns, a Preservation Manual for Historic Cemeteries in Arkansas* and *Landscapes of Memories: a Guide for Conserving Historic Cemeteries, Repairing Tombstones*):

In Situ

A stone that is in its original location.

Displaced

A stone or part of a stone that has been moved from its original location.

Soundness

Condition of a marker that, after reasonable inspection, shows no sign of damage, no improper previous repairs and no excessive deterioration.

Cracks

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

Delamination

A 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, markers not commonly found in Michigan.

Scaling

The peeling away of the outer layer of stone.

Erosion

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.

Sugaring

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

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.

Efflorescence/Subflorescense

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.

Fallen

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

Tilted/sunken

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

Fragments

Small pieces of broken stone.

Discolored/stained

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.

Mower Scars

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

Transcribing Inscriptions

Include the inscription on the headstone survey form. The inscription should be transcribed exactly as it exists on the headstone. Transcribers should work in teams of two with one person reading and one person writing. In the case of transcribing a verse, note the end of one line and the beginning of another. Other things to be noted are capitalization, unusual spellings, and punctuation.

The Chicora Foundation recommends the following standardized method of recording transcriptions:

- A slash / indicates a break in the line.
- Empty brackets [ ] indicate missing information.

Therefore you would transcribe

Here lies /
Our be[ ]ved Son /
John Smith /
D [ ]d 11 Nov[ ]ber 1847

The lettering within the brackets [ ] is worn away or unreadable.

If the actual inscription is known from documented sources, this can also be noted. **In cases where the inscription cannot be read or read only partially, no assumption as to what was carved should be made.** Recording the inscription as it reads at the time of the survey may help to gauge the rate of deterioration of the inscription in the future.

When the inscription is difficult to read, try shining a strong flashlight across the stone from the side to highlight the carving or use a mirror to reflect the sunlight. Another method of reading illegible inscriptions is to peer through a tube about 2 inches in diameter and 12 to 16 inches long. Holding the tube at an angle, place one end of the tube almost onto the stone and let the sunlight enter through the other end. This will help to accentuate the lettering. With extremely difficult inscriptions, have a second team read them and compare the results.

Iconography/Decorative Carving

Many gravestones have decorative carving, known as iconography, that should be documented on the survey form using both written description and photography. If the detail is not sufficiently clear in a photograph, a close-up of the design should be taken. Several photographs may be necessary when the designs are elaborate.

A written description of the carving can be as simple as: "praying hands with fingertips pointing upward" or "a willow tree." A more elaborate description might read: "an open book with flower and fruit garlands cascading around the book and down the sides of the headstone." Having both the photograph and the written description will assure thorough documentation of the headstone carving.

The willow and the lamb were common designs in the 1840s. This photo and the one on page 47 show a well-preserved carving on a memorial and a close-up of the top of the memorial.

Carver/Manufacturer

The name of the local carver, and sometimes the village or city where he/she was located, often appears at the bottom of the headstone. Sometimes the gravestone base will also include the name of the carver or manufacturer. All information should be recorded.

HISTORIC FENCING AND ENCLOSURES

Many small cemeteries are unfenced but it is not uncommon to find historic fencing, gates and entry signs in Michigan cemeteries. Historic fencing materials include wood, woven wire, fieldstone, concrete block, brick and especially ornate ironwork fencing. Beginning around the mid-twentieth century, cemeteries that had been previously unenclosed were surrounded by metal chain link fencing for security purposes. Where historic fencing is extant efforts should be made to repair and maintain it as an important feature of the cemetery. It should be documented along with other ancillary elements and the documentation kept with other cemetery survey data.

Before the Civil War cast iron became readily available and several companies manufactured ornate fencing through the early decades of the twentieth century. Elaborate cast fence posts, entry gates and signs identifying cemeteries were common. Later wrought iron and woven wire became more popular. Many are in disrepair or are deteriorating. Cast ironwork requires special treatment in both repair and maintenance, as it is vulnerable to corrosion and accidental harm from mowers and other equipment. Plans for the conservation and routine maintenance of these metal objects should be made when setting

goals for a conservation project. While it is always advisable to repair historic elements instead of replacing them, historic cast iron requires special handling in both repair and maintenance. See the section in Chapter 3 on conservation of metalwork before beginning any repairs or repainting.

When documenting a cemetery's features try to determine the manufacturer of any ornamental metal work. Often a company placed a plaque on gates or posts that will indicate the manufacturer. Check carefully for any markings on fencing elements. Occasionally a catalogue number will be recorded on a post. This number can be researched through sources such as the Chicora Foundation. Checking local city directories for the late nineteenth century, a time when many of the country's manufacturers of decorative iron work were active, may lead to information about a local company. A good discussion of historic fencing styles and manufacturers can be found at the Chicora Foundation web site. Fence catalogs ranged from nationally known companies such as Sears Roebuck and Company to local Michigan companies like the Page Fence Company of Adrian, Michigan. Chicora's web site gives a brief history of some common Midwestern companies that supplied fencing for cemeteries. The site will be helpful when documenting historic fencing. Identifying the company that manufactured a cemetery's fencing can be helpful when there is a need to replace sections.

In some instances the original company nameplate will remain on the wrought iron fence. This information is valuable when trying to replace or repair fence sections.

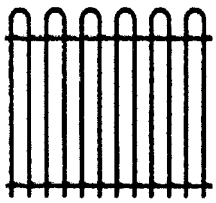
Around the turn of the twentieth century many local fence companies existed in Michigan communities. One example is Adrian, Michigan, which prided itself on being the "fencing capital of the world." Several fencing companies were located in this southeastern Michigan city. And a great deal of Michigan's historic fencing might have come from these sources. Adrian city directories list these companies from about 1889 to 1916:

Page Woven Wire Fence Co.
Lamb Wire Fence Co.
Adrian Wire Fence Co.
Michigan Wire Fence Co.
Monarch Fence Co.
Standard Fence Co.
Bond Steel Post Co.
Peerless Wire Fence Co.

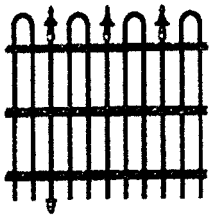
Check the city directory of the community closest to the cemetery for possible sources. The Michigan Gazetteer, published in the nineteenth century, is a good source of information, offering a statewide listing of companies.

On occasion, elaborate fencing and gates can be found surrounding family plots.

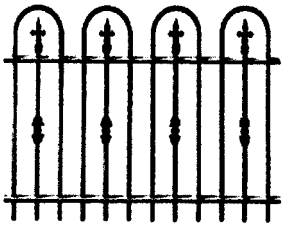
TYPICAL FENCE DESIGNS



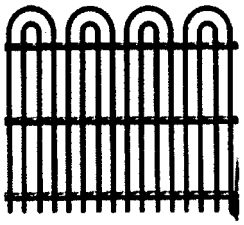
Hairpin



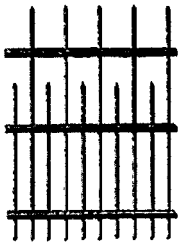
Hairpin & Picket



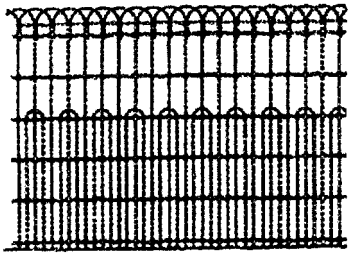
Bow & Picket



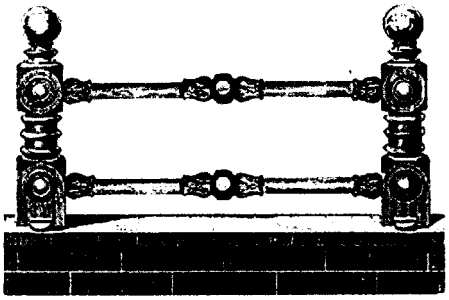
Bow & Hairpin



Milled Point



Woven Wire



Gas Pipe Railing

Drawing used with permission of the Chicora Foundation, Colombia, South Carolina

The above drawings, taken from the Chicora Foundation web site illustrate the most common types of iron fencing. Most of these fences consisted of either two or three wrought iron rails with attached vertical elements in cast iron. "These (fences) are often classified as picket (either beveled or with special picket heads), hairpin, hairpin and picket, bow and picket, and bow and hairpin." Posts were often of three distinct types: line posts, panel, square/solid (usually cast), and open or scroll." (Chicora web site) Pipe fences were common in the early twentieth century. They were less expensive, simple, and durable, and were often used to surround family plots. This type of fencing was fabricated from galvanized pipe with white metal connectors that were usually attached to cement coping. Less common due to its fragility, is the woven fence. While sometimes quite decorative and ornate, it was the least expensive and quickest to corrode. It is also quite susceptible to accidental harm from mowers and other equipment.

Wooden fencing was also used to some extent throughout the state; however, wood deteriorates quickly when left unattended and much of this type of fencing is in poor repair. In the mid-twentieth century chain link fences became common, often as replacements for iron fences.

OTHER BUILDINGS AND STRUCTURES

Chapels, mausoleums, and storage sheds are some of the buildings and structures located within and associated with historic cemeteries. Although worthy of preservation, they are beyond the scope of this manual. Anyone considering repairs and conservation of these elements and structures, other than repointing, should contact appropriate professionals. All structures and their locations should, however, be well documented and noted on any survey form, plan or map prepared for the cemetery.

MAPPING

Mapping is vital to any cemetery plan. Not only does it give a clear picture of existing conditions: a good map will help to document boundary changes over time. The result will be a working document that will be useful in implementing a restoration plan. Before beginning a mapping project gather any existing maps that may already be available.

When preliminary research is completed, it is time to prepare a working map. This is a relatively easy project that can be accomplished using a group of dedicated volunteers. A hand drawn map is the simplest method, and untrained workers can manage this task. The required tools should be gathered before beginning. Little more is needed other than time, a ruler, a pencil, a pad of graph paper, and something to measure with. While a three hundred foot measuring tape should be adequate to the task, an excellent alternative is a measuring wheel, available at home centers or rental companies. The measuring wheel is mounted to a handle and clicks off the measurement as the operator walks behind.

Begin by identifying the parcel using its legal description, making sure that the legal description and the present boundaries coincide. Record on the map. Indicate where changes to these boundaries have occurred over time. Unmarked graves may exist outside of current lines.

Beginning with the accurate boundary map, divide the property into grids. Ten yards by ten yards makes a good workable unit for the grid. Each grid should be represented on a separate piece of graph paper. One approach to mapping these grids is to draw a centerline through the cemetery and draw the grids from this line. If the fence or other perimeter demarcation is adequate, use that edge as a beginning point. Where the size or configuration

of the cemetery renders one base line inadequate, several may be drawn. In using this method take precautions to accurately number and identify grids so that confusion does not arise later.

If a laptop computer is available, there are mapping programs that can be used in the field. See Appendix B for software sources. The advantage of electronic mapping is that it is easy to update. It can also be altered to serve multiple efforts. For example a National Register, state historical marker, or local historic district study committee report will require the inclusion of a sketch map that does not necessarily contain all the information gathered for a working map. Deleting items on an electronically generated map is a simple process. Often communities use GIS mapping and aerial photographs to identify their communities. Maps using these methods can be a valuable starting point. While Global Positioning Satellite (GPS) technology can be used to plot a cemetery map, a unit accurate to six inches to twelve inches or less is required. These units are expensive.

Check with the county or township to see if aerial maps of the cemetery are available.

Cemeteries relatively clear of excessive vegetation can be viewed well from above. Although this sort of accuracy is not necessary, an aerial photograph can be a valuable aid in creating a map.

All maps must include:

- cemetery name
- city, county, township
- north arrow
- date completed
- name of person who created the map
- key

As a guide in preparing a map, the following method is quoted *from Landscapes of Memory; a Guide for Conserving Historic Cemeteries*, published by the Management Board Secretariat Publications, Ontario.

Scale:

Determining the scale of a plan depends upon the size of the cemetery and the number of grave markers to be recorded. The most suitable scales are either one 1/8" = 1' or 1/16" = 1'. Larger scales are better where there are a large number of markers, particularly if they are close together.

Equipment Required:

- Tape measures: Two 100-foot tapes (preferably fiberglass) and one 16-foot hand-held metal tape
- Small hatchet (or hammer and handsaw) for cutting and placing wooden stakes
- A measuring compass
- A hand level: for sloped sites only to keep tapes horizontal for accurate measurement
- Wooden stakes: from 1" x 2" stock, approximately 24 inches long, cut on an angle at one end only
- Nails: 1-1/2"–2" common nails
- Waxed twine
- Cardboard or similar numbering tags (for grave markers)
- Permanent ink felt-tip marker
- Drafting tape
- Drafting paper or film (e.g. Mylar)
- Drafting pencils and sharpener
- Grid (graph paper) paper to use as underlay for sketches
- Drawing surface (e.g. clip-board for small field sketches, or a smooth-faced sheet of plywood)
- Drafting scale

Method

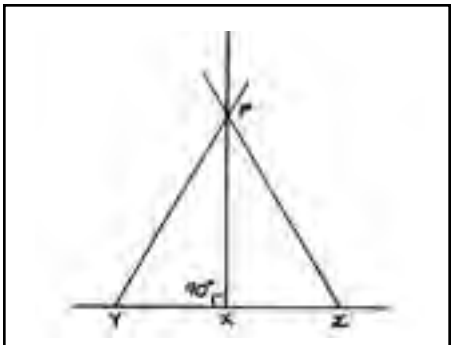
- Select an area free from obstructions.
- Lay down a base line using a 100-foot tape.
- Line up the tape in a straight line and mark the baseline with wooden stakes driven into the ground at even intervals (e.g. every 25 to 30 feet). Subsequent measurements will be greatly simplified if this base line is laid parallel to the majority of the grave markers.
- Attach string to nails driven into the tops of the stakes, to mark the base-line.
- Lay off lines at 90 degrees to this base line, at regular intervals along it (e.g. every 25 to 30 feet). (figure 1)
- Complete the grid by laying off lines at right angles to one another at regular intervals (e.g. 25 to 30 feet), marked by wooden stakes (figure 2)
- Number the wooden stakes, beginning in one corner of the graveyard as shown (figure 3). Mark the numbers on the stakes. Draw the stakes on the graveyard plan, with their numbers. Each square on the grid is identified by the number of the stake. The stake in the lower left-hand corner then identifies each square on the grid.

- Take a compass reading along the base line, and / or measurements from the base line to a permanent feature such as a fence, to record the position of the base-line that was used for the survey.

Measure and Record the Grave Markers and Other Features

Marking the graveyard off with a grid allows different teams to record different squares. Starting at one corner of the cemetery (e.g., A1), record the features in each square, as follows:

- Secure lengths of string along two opposite sides of the grid square, fastened to nails in the top of the wooden grid stakes.
- Lay a measuring tape across the square at 90 degrees to the strings, and at about the same distance along both sides from the grid line. Position the tape as close as practical to a row of grave markers and where it will not touch any markers, bases, fences, etc. Fasten the measuring tape into position on wooden stakes
- Measure the position of the grave markers relative to this tape. Measure along the tape in one direction. Ensure that the hand tape is 90 degrees to the measuring tape on the wooden stakes. Measure to both corners for headstones or footstones, and to all four corners for markers such as box tombs, cairns, or slabs flat on the ground. Also measure the plan dimensions of markers at this time. Show curbstones, walls, fences, trees and other major plantings, as well as grave markers.
- Record the locations and measurements on a sketch plan, drawn in pencil. Show the number of each grave marker. It also helps to show the family name from the marker on this sketch plan, to avoid confusion. Draw the footprint of the marker in the plan. For markers that lie on the ground, the plan view will show the individual shape.



X = the point from which a 90° offset is required.
Y,Z = points equidistant from X on a straight line.
P = a point at which two measuring tapes attached to Y and Z cross at the same length.

Figure 1: Constructing the Perpendicular. Drawing courtesy of Ontario Ministry of Citizenship, Culture and Recreation.

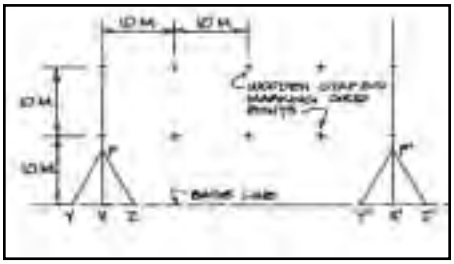


Figure 2: Constructing the Grid. Drawing courtesy of Ontario Ministry of Citizenship, Culture and Recreation.

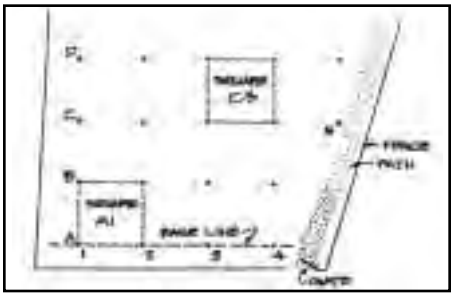


Figure 3: Numbering the Grid. Drawing courtesy of Ontario Ministry of Citizenship, Culture and Recreation.

- Be sure to show the distance of the tape from the grid line–otherwise, the measurements taken do not relate to anything. (*Landscapes of Memory: A Guide for Conserving Historic Cemeteries, Repairing Tombstone*, p. 46-48)

Whether using the above "Ontario Method" or any other to prepare the map, the second step is to identify all the elements of the cemetery. Each marker, ancillary feature, building, and landscape feature, including fencing, signs, family plots, roadways and paths, within the confines of the boundary should be identified on the map. Using the prepared grids, assign each feature a number within the grid, and record it on the map. This number can then be used as that feature's identification number for all survey forms and for referencing a particular item. Include a key with the map that explains the numbering system so that others can readily understand the system. Maps should be generated in such a manner, perhaps using overlays, that adding or deleting items is easily accomplished. For example, being able to remove items such as vegetation, and leaving only markers allows the map to be used for varying purposes. Planning in advance for various uses saves time later on, when the map is used for specific purposes. Using overlays will make it easy to record earlier boundaries and any other changes that may have occurred over time.

IDENTIFYING VOIDS AND VACANT SPACES

A clear picture of the cemetery emerges when the survey and mapping are completed. Often this completed map will show areas where no headstones exist (voids) or where the ground appears to have depressions among existing gravestones. When this is evident, probing (subsurface investigation using specified tools) is called for. See **Probing** below. If probing indicates unmarked graves these too should be identified on the map.

In order to have an accurate survey, it should be determined whether or not voids are actually "vacant" spaces. There are many reasons for open areas in a cemetery:

- A plot may have been purchased and never used
- Headstones may have fallen over and subsequently become overgrown
- Headstones may have been vandalized or stolen
- Some graves may not have been marked with a headstone
- Some plots may not have been sold

The identification of unmarked graves begins with looking for rectangular depressions in the soil that follow the line of existing headstones. Most historic cemetery burials have followed an east to west orientation, which is a reflection of the belief that on judgment day the dead will rise to face the rising sun. Though the east/west orientation is the "norm," it in no way precludes the possibility of a north/south orientation.

Probing

1 2 A simple and economical way to locate a grave without any visible depression is to use a probe. Probing is also an excellent way to locate sunken headstones and headstones that have fallen over (or been broken) and become overgrown. Before beginning to probe ask the local utility companies to mark any electrical or gas lines within the cemetery border. Probing can safely be done by volunteers that have been trained in the practice.

By using a probe like this young volunteer is using, previously broken or covered stones can be found and replaced to their original position.

Plumbing supply stores sell a device called a "smart stick" which is useful for probing. The smart stick is a rod of metal or fiberglass, about three to four feet long, with a handle mounted at one end to form a "T." The rod itself is a one-fourth inch to three-eighths inch dowel. Some commercially available probes have replaceable tips and are available at environmental companies such as Ben Meadows (Appendix B). It is important to remember that the length of the probe should not exceed four feet because older graves are often less than six feet deep and it is necessary to prevent the probe from entering the burial chamber. In addition a probe that is four feet long will afford the greatest "feel." Before beginning, probe marked graves and known open areas in order to tell the difference between undisturbed soil and softer less compacted soil.

When probing for lost stones or graves a methodical approach must be employed. Use the same grid system that was created when mapping the cemetery. Begin probing any suspected voids or depressions in a systematic way, starting at one corner of the grid. Insert the probe into the ground every eight to twelve inches, noting any variances in the resistance. When the probe hits biological material it will produce a duller feel than when contacting a headstone, which produces a higher pitched "tink." Indicate any soft spots with a marking flag, and then continue probing, attempting to delineate the shape of the softer area. Large rectangular shaped areas will often be graves; smaller rectangular areas may be submerged headstones or graves of children. Smaller or rounded areas could be animal burrows or rotted trees. Carefully note the location of newly identified graves or headstones on both the survey form and the cemetery map. Move along one side of the grid and continue probing until all of the area has been investigated.

A more advanced method for locating lost headstones, and one that requires professional training or is done under the direct supervision of a professional, is the use of a Soil Compaction Tester (penetrometer). This device measures the density of the soil. It should be inserted into the ground no more than 6 inches. A gauge or digital readout on the handle indicates the compaction level in psi (pounds per square inch). The shaft has measurements so that one can monitor and record the different changes in compaction levels. As with a probe begin by examining known graves so that the normal density of existing graves is determined. See Appendix C for resources.

A third method of discovering lost graves, requiring professional experts and equipment, is to use ground penetrating radar imagery (GPR). This method is noninvasive and produces a cross sectional profile of subsurface features. It operates by sending pulses of ultra high frequency radio waves into the ground as the GPR unit is pulled over the surface. The radio waves are reflected from various buried objects. The reflected signals return to the GPS unit where they are received by a digital control unit. The signals are plotted on the ground penetrating radar profile as different color bands by the unit. In some instances a three-dimensional image can be made to better define the area where graves are located. Although the cost of a GPR investigation can be expensive, because it requires a trained professional, a great deal of land can be covered in a short period of time. An internet search on "grave locating ground penetrating radar" identifies companies that will perform the survey as well as information on past investigations by agencies such as the National Park Service.

PHOTOGRAPHY

All features in the cemetery, including general views, will need to be photographed. The two types of photographs needed to document a cemetery are:

1. Photographs of individual features such as monuments, plantings, gates, fencing, ponds, roads, and buildings. These features should be depicted with individual photographs that clearly show important details.
2. General views that show how the individual features interrelate in the landscape. Enough views should be taken to give a good sense of the look and feel of the cemetery's significant features.

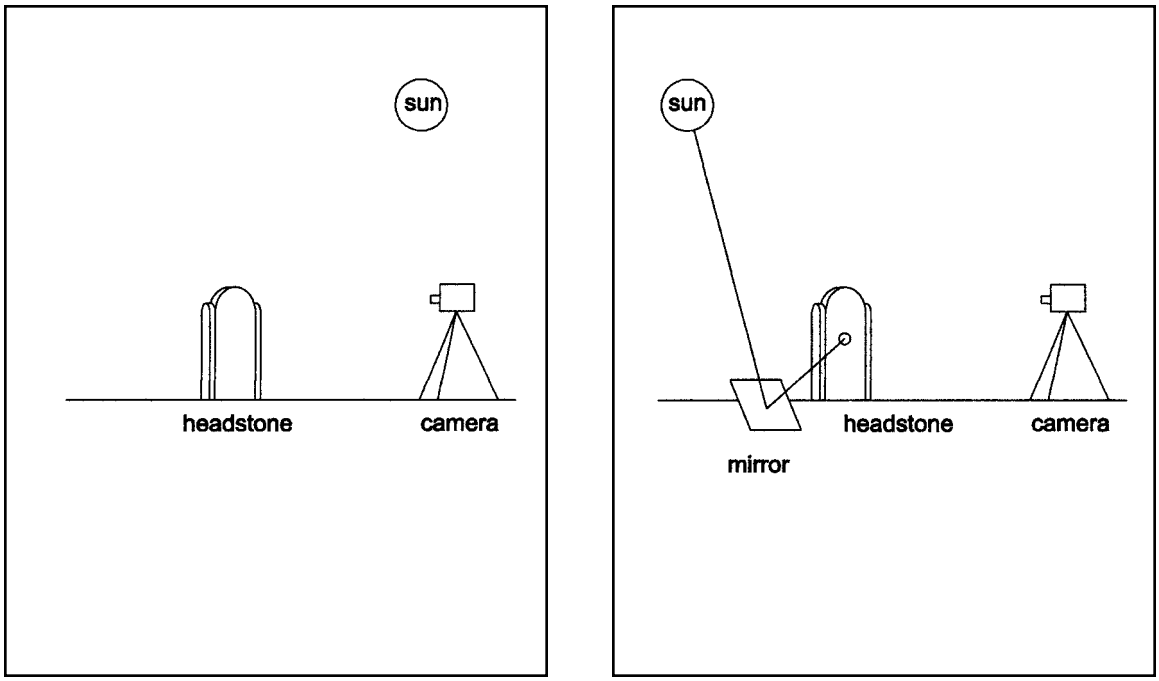
These photographs can be documented on a master survey database and/or inventory form, and number-coordinated with the map.

The National Park Service suggests, "When landscapes are documented in photographs, *registration points* (points of reference) can be set to indicate the precise location and orientation of features. Registration points should correspond to significant forms, features, and spatial relationships within the landscape and its surrounds. The points may also correspond to historic views to illustrate the change in the landscape to date. These locations may also be used as a management tool to document the landscape's evolution, and to ensure that its character-defining features are preserved over time through informed maintenance operations and later treatment and management decisions." (National Park Service Bulletin Number 36, *Protecting Cultural Landscapes*) If the cemetery has been mapped on a grid, photography can be done in sequence using the grid system.

The Association for Gravestone Studies leaflet entitled "Recording Cemetery Data" includes the following suggestions for photographing gravestones such as:

- Know when to photograph. Bright sunlight is best for gravestones. The sun should pass across the face of the stone from side to top at an angle no more than thirty degrees.
- A framed mirror as big as the gravestone can be used when the sun is not bright. Place the mirror in a spot of bright sunlight 100 feet or less from the marker. Try to work with the sunlight behind the stone. Experiment to get the best position. The reflected rays will light up the stone enough to get an accurate photographic record.
- A 1/4 inch piece of plywood painted gray and placed behind the stone will prevent the stone from competing with the background of the cemetery.
- Snow on the ground prevents good photographs.

- Clean the stone with a soft natural-bristle brush and water to remove dirt before you photograph.
- Place a stick with the pointed end facing north on one side of the stone to indicate direction.
- Any camera with a good lens is acceptable. A 35mm camera works well for prints 8"x10" or smaller. Most photographers will find an exposure speed between 1/125 and 1/250 to be adequate. A digital camera also works well. If using a digital camera, have prints made by a professional who uses archival paper.
- Film recommendations include Tri-X (ASA 400 for overcast days and 200 for sunny days) for black and white prints and Ektachrome 200 (ASA 200) for color. Black and white photos are required for a National Register nomination and are more permanent.
- Identify each stone by inserting a numbered marker into the ground beside the stone to be photographed. Renumber the marker for each stone. Do not place the marker on or in front of the stone.
- Tape a coat hanger to a yard stick with some of the wire extending a few inches beyond the length of the yard stick. Put the extended wire in the ground next to the stone so that the yard stick will indicate stone size in the photograph.



Bright direct sunlight is necessary to photograph monuments. Light shining across the marker at a 30° angle produces shadowing that highlights the markings very well. When direct sunlight is difficult to achieve, a mirror can redirect the light to highlight the inscription.

For advice on photographing vegetation, a guide such as the Brooklyn Botanical Garden's handbook, *Garden Photography*, may be helpful.

The photograph should be labeled on the back using a soft lead pencil with the date, identification number assigned to the gravestone or feature (the same number will go on the documentation form), cemetery name, county and township, direction the photographer is facing (i.e. north, south, east, or west), and the photographer's name. Additional information regarding the gravestone, plant, or other artifact can go on the individual documentation form. Sample documentation forms can be found in Appendix A.

If you are interested in nominating the cemetery to the National Register of Historic Places, there are special photography requirements for the application. See p. 63 of National Register Bulletin 16A: "Guidelines for Completing National Register of Historic Places" form. The National Park Service also publishes a bulletin entitled "How to Improve the Quality of Photographs for the National Register Nomination."

The survey product

When the survey and map are completed they should be duplicated and stored in several locations in the area. The local historical museum, historical society, and library are all appropriate places for this documentation. Send one copy of the information to the State Historic Preservation Office and another to the Association for Gravestone Studies where it will be stored in their databases and be accessible nationwide.

Mapping, photography, and transcribed records will form the foundation for a cemetery conservation and maintenance plan. In case of theft, vandalism, accident, or as the result of damaging acts of nature, a detailed record will exist for reference. Continuing to update this documentation with any changes will facilitate future efforts.

Chapter 3

CONSERVATION OF THE CEMETERY

In cemetery conservation there are four major areas to be addressed: landscape, gravestones, ancillary features, and buildings and structures. This manual is intended to provide a guide to conservation of all elements except buildings and structures, which are beyond the scope of this manual. Using the analysis already prepared, set goals to prioritize conservation efforts. Initial stabilization of all areas should be accomplished before any conservation measures are undertaken. Keep in mind these principals:

- Do no harm
- All actions should respect the original fabric of the cemetery
- Use the gentlest and least invasive means possible
- Attempt to do that which can be reversed
- Quick or easy fixes may not always be a reasonable choice
- When in doubt, consult a professional

LANDSCAPE FEATURES

1 2 Look at the landscape to determine its character. In Canton Township and much of southern Michigan, settlement era cemeteries date from the early 1800s to around 1850. Some were the burial ground of extended families and most were sparsely planted and were surrounded by open fields. In the later part of the nineteenth century cemeteries took on a Victorian image with more plantings from that era. Some were associated with ethnic or religious groups. Previous research will shed light on the historic period of the burial ground and which plants are appropriate for that timeframe. This information can be used to make a conservation plan. If the cemetery consists of separate sections added over time, the landscape conservator can preserve each area accordingly. Landscape conservation planning can be difficult because, unlike other cultural artifacts in the cemetery, the vegetation is always changing.

2 One of the first conservation measures is to stabilize and protect plant material and topography, such as an eroded slope or fragile earthwork. If areas of the lawn need reseeding use a low maintenance slow growing, drought resistant seed mix. See the Lawn Maintenance section for a complete listing of grass seed suggestions for both shade and sun. Planting a ground cover is a way to stabilize an area where erosion has washed away the turf or where the slope is such that mowing is difficult. Using a ground cover planting taken from elsewhere in the cemetery is preferred. If there is none, use a compatible plant from the same historic period. For example, for the period of the late nineteenth century, moss phlox (P.subulata), dwarf dianthus (D. chinensis), periwinkle (V.minor and V.major) or lily of the valley would be appropriate choices.

In the National Trust publication, *Preservation of Historic Burial Grounds*, Lynette Strangstad recommends moving monuments slightly (documenting the change) to accommodate significant plants and trees when roots disrupt the grave site. In some cases it is best to remove the vegetation. Base your decision on the plant and the historic significance of the marker, the damage that may be caused by moving either one, or how extensively one intrudes upon the other.

Minimal mowing is historically accurate and to a certain extent helps prevent damage to markers and plants. When community standards do not allow longer grass, installation of historically accurate ground covers can be an alternative. Irrigation systems are not historically correct and may be likely to cause water damage to the stones. Volunteer species should be removed regularly, including volunteer trees and bushes.

Here are some tips suggested by Scott Kunst, historic plant expert and owner of Old House Gardens in Ann Arbor, Michigan:

- Start by educating yourself about historic plants and their importance in the cultural landscape.
- Use weed whips and herbicides carefully and only when necessary. Make sure cemetery cleanups are done judiciously and do not eradicate historic plants.
- If plants need to be moved, only move them a short distance if possible, or move the marker instead — but only as a last resort.
- Propagate historic plants by saving seeds or taking a cutting.
- Avoid using new plants on historic burial grounds, but if this is allowed, be sure to document both plant name and location.

Pathways and Roads

The preservation and maintenance of pathways and road is important in maintaining the historic design of the cemetery. Early nineteenth century burial sites typically had paths of dirt, gravel, cinder, or stone dust. Later in the century brick, concrete, and macadam were used. When conserving roads and pathways, consideration should be given to historic appropriateness as well as cost and maintenance. In the *Preservation of Historic Burying Grounds* Strangstad says:

> Such preservation includes maintaining existing widths and contours, small triangles or small circles often found at intersections, and the original paving surfaces. Brick gutters should be maintained rather than ignored or eliminated. Introduction of asphalt for the convenience of modern vehicles seriously alters the site and erodes its integrity. To preserve certain existing roadways, traffic can sometimes be limited to pedestrians only. Replacement of original crushed stone or early brick with new brick pavers or other paving materials likewise compromises the site. If brick was the original material, roads or paths should be resurfaced with as much of the original brick as possible and reproduction brick that match the original in color, size, texture, and strength. When a custom-made brick is required, restoration brick firms generally have little difficulty in producing good replica brick. (Strangstad, p. 20-21)

Ancillary Features (metalwork, gates, signage, family enclosures, walls and fencing)

Metalwork, including wrought iron, cast iron and zinc (often referred to as white bronze) is frequently found as an ornamental element in cemeteries, and to a lesser extent in grave markers and monuments. The care and maintenance of these materials is an important

part of any conservation and maintenance plan for an historic cemetery. Special care and treatment is required if good preservation practices are to be followed.

Due to environmental concerns and the hazardous materials required, very little can be accomplished in the field or by unskilled volunteers and untrained workers. There are varying opinions, even among the experts, as to which is the best cleaning and repair methods for historic metals. As it is most likely that any but minor cleaning and repairs will require an experienced professional, the following section discusses several methods and techniques in order that an informed selection of a professional is possible. The preferred methods will be discussed first, followed by others that may be useful in particular situations. Talk with a professional and be comfortable with his or her recommendations before contracting any work. Be sure that the contractor shows an understanding of the need to treat historic materials with care. Remember that quick and easy fixes will most likely result in a solution that is short-lived at the best, and at the worst will cause damage to the historic element. The discussion does not include metals such as aluminum or tin as they are seldom encountered in historic cemeteries. Historic bronze requires professional treatment and a professional should always be consulted when dealing with this metal.

Several sources are available that thoroughly discuss preservation methods for historic metalwork, *Caring for Iron Fencing* (Saving Graves web site), *St. Louis Cemetery No. 1 Metalwork Protective Coatings* (University of Pennsylvania web site), *U.S. General Services Administration (GSA): Historic Preservation Technical* Briefs numbers 05010-13, 05010-01, 0700-03, 05523-01, 05010-11, and 05010-04 (GSA website), and *Preservation Briefs 27 and 28* available through the National Parks (NPS) Service website.

METALWORK

Cast and Wrought Iron

The metal most likely to be encountered in Michigan cemeteries is wrought or cast iron. For an understanding of this metal, its use and maintenance, a good beginning point is the National Park Service (NPS) *Preservation Brief Number 27*. It is intended for extensive restoration projects like building façades, but the methods and the considerations are the same for smaller elements such as fencing and decorative work. NPS *Preservation Brief 27* begins by defining cast iron and explaining how it differs in composition from wrought iron.

> Cast iron is an alloy with a high carbon content (at least1.7% and usually 3.0 to 3.7%) that makes it more resistant to corrosion than either wrought iron or steel. In addition to carbon, cast iron contains varying amounts of silicon, sulfur, manganese, and phosphorus.

Molten iron for casting is easily poured into molds, which allows for a broad scope of both decorative and structural objects to be cast. When cooled it becomes a hard, brittle, but strong metal that cannot be worked by hammering (poor tensile strength). It does not buckle easily and therefore was used in building construction where it could support great weight loads (strong compression strength). But it is cast iron's ability to be molded that has produced much of the ornamental fencing, gates and other decorative items found in cemeteries.

Wrought iron, on the other hand, "is relatively soft, malleable, tough and readily worked by forging, bending and drawing." It is much lower in carbon content, usually considerably less than one percent.

When looking at ironwork objects there are several clues to look for that will help to determine which metal it might be.

Cast iron elements are:

- complex in form
- can be very large
- uniform in appearance
- may show mold lines
- may have flashing, casting flaws, and air holes
- frequently repetitive in design (fence sections)
- pieces often bolted or screwed together.
- tends to have a sand-like finish

Wrought iron elements are:

- one of a kind hand-worked
- show hammer or rolling marks
- softer and malleable
- simpler in form and detail
- tend to be smaller objects

Condition Assessment:

Having verified the presence of cast iron elements in the preliminary survey of a cemetery, and before repairs are attempted, a thorough assessment of the type and extent of damage is paramount. NPS *Preservation Brief 27* indicates that in order "to thoroughly access the condition of the ironwork, a close physical inspection must be undertaken of every section of the iron construction including bolts, fasteners and brackets." When performing

an assessment of the condition of historic ironwork keep in mind that most work undertaken will require professionals since hazardous materials are found both in the original finishes and in the chemicals needed to properly clean iron before repainting. These materials are harmful to both the worker and to the environment.

Light brushing and repainting are often the only tasks that can be undertaken in the field. More often iron elements will have to be removed then repaired and recoated in the shop. When disassembling fencing be sure that each piece is marked so that the reassembly process can be done in the reverse order. Where items are to be removed and stored while awaiting repair, proper storage, away from dampness and potential damage is required. Leaving gates or fence sections leaning in a corner of the cemetery awaiting conservation invites problems with exposure to the elements, thieves and vandals.

Deterioration

Although cast iron and wrought iron are two distinct metals, they have problems in common and these problems often share a common solution. The most common problems found in historic ironwork are

- Oxidation (rust, corrosion)
- Missing elements
- Impact damage
- Structural failure
- Broken joints
- Damage to connections
- Loss of anchorage in masonry

Moisture is the number one enemy of damaged, poorly maintained, or untreated ironwork. Moisture, when allowed to penetrate a protective coating, or allowed to pool around elements, will soon take its toll. Once the metal has been allowed to go unpainted, or has been damaged, moisture begins the corrosive procedure and must be properly abated or rust will soon completely destroy the metal.

Corrosion

All iron is susceptible to two main types of corrosive damage, oxidation and galvanic corrosion. The more familiar is oxidation or rust. It occurs when unprotected metal comes into contact with the oxygen in the air and with moisture from rain, fog, dew, and other sources. Other airborne elements such as carbon dioxide, soot, and sulfur compounds will hasten the process.

Oxidation/Rust

The typical deterioration or corrosion process for cast iron is a one-step, straight line process of oxidation (or rusting) which begins upon exposure to air and moisture and will continue (unless interrupted) until the metal is gone.

> Rust (ferrous oxide) is an orange colored surface coating, ranging in texture from scaly to powdery. It is loosely bound and the outer layers will usually come off when rubbed by hand or brushed against. It is not a deposit on the surface and the presence of rust indicates that some of the original iron material has been converted to iron oxide and irreversibly lost from the cast iron piece. (U.S. General Services Administration. Historic Preservation Technical Procedures #05010-04, *Cast Iron: Characteristics, Uses and Problems*)

A careful assessment of the iron element will determine if the rust is present on the surface or if seepage into cracks and air holes has done considerable sub-surface damage.

Galvanic or electro-chemical corrosion occurs when two differing metals come into contact with one another and an electrolyte, such as water containing salts or hydrogen ions. Because of their chemical differences, metals such as copper, lead, and wrought iron can cause a galvanic reaction with cast iron. In this type of corrosion the carbon present in the cast iron combines with the other metal and the iron is dissolved as rust. Galvanic corrosion severely alters the strength of cast iron. For both types of corrosion the prevention is the same, protection from moisture with a sealing coating.

Graphitization, although less common, is another type of deterioration seen on cast iron. It occurs when the metal is left unpainted for long periods of time and acidic rainwater is allowed to penetrate joints. It can be tested for by carefully scraping the surface to reveal the crumbling of the iron beneath. If the damage is extensive the only recourse is to replace the effected parts.

Other damage

Since cast iron is brittle, breakage from vandalism, accidents, or neglect is also of a concern. Fencing along busy roads is susceptible to damage from automobile accidents as well as salt or other deicing agents. All of these will lead to damage of the protective coat allowing moisture to penetrate and corrosion to begin.

Cleaning and Paint Removal:

Keep in mind that "Before undertaking any project involving paint removal, applicable state and federal laws on lead paint abatement and disposal must be taken into account and carefully followed. State and Federal requirements may affect options available to owners on both paint removal and repainting." (NPS *Preservation Brief 28*) These restrictions will most likely preclude doing any but the most minimal fieldwork. Be sure when choosing a professional that they have experience with historic resources. The Michigan Historic Preservation Network Construction Trades Council can provide information on experienced contractors.

1 If the condition assessment indicates that damage is **minimal**, hand brushing with a stiff brush may be all that is required and unskilled workers may be able to help with cleaning. Whatever cleaning is undertaken remember to begin with the gentlest means possible. This should always be a first option when working with historic resources. Care should be taken not to damage decorative work. Be thorough, if all rust is not removed and the metal quickly sealed the corrosive process will continue and further deteriorate the metal.

2 3 Restoring historic ironwork, however, will most often require cleaning to the bare metal, removing old paint and corrosion and then sealing and recoating. There are several methods that can be employed. Although they will require skilled workmen or professional curators it is worthwhile to become familiar with the techniques and recommendations. Doing so will help in choosing the proper professional for the job and will help insure that the work performed is satisfactory and will not harm the artifact.

Techniques that can be employed include, (simplest and least expensive)

- Hand scraping, wire brushing and chipping
- Rust conversion (with caution)

Extensive hand scrapping, wire brushing and chipping require craftsmen **(level 2)** in order to protect the metal from scoring and other damage. They are indicated for light rust only since they do not remove rust and paint as effectively as other methods.

> *Note:* The removal of heavy rust, scaling, or corrosion should be left to a trained professional **(level 3)**.

A reasonable and **preferred** alternative to hand removal is the use of a rust converter. This method is recommended in that it removes the least amount of the original fabric from an object and it is considerably less labor intensive than hand removal. The process involves

removing a minimal amount of rust by hand and then applying the converter much like applying paint. A rust converter stabilizes by converting rust into a more stable chemical that when cured, accepts paint well. The use of a converter also assures the user that even tiny cracks and pits are sealed. This is not the case with hand rust removal. After the converter is applied and allowed to cure, two coats of appropriate top-coat should be applied. (See Appendix for sources)

The following treatments are more complex and expensive and can do more damage to historic material. Therefore they are not recommended and should only be used as a last resort when gentler cleaning methods have failed.

- Low pressure grit blasting
- Flame cleaning
- Chemical rust removal

Some conservators do not recommend abrasive or chemical cleaning under any circumstances. The Secretary of the Interior's Standards for Rehabilitation states, "Chemical or physical treatments such as sandblasting that cause damage to the historic materials **shall not be used**. The surface cleaning of structures, if appropriate, shall be taken using the gentlest means possible." According to the Chicora Foundation, the use of abrasives will remove the mill scale, an oily coating, on the metal that serves as a natural protective agent. If however, abrasives are the only alternative a soft abrasive such as ground shell should be used at a low psi of sixty to seventy pounds with a working distance of at least twelve inches. Any type of grit blasting can damage stone or brick, potentially causing damage to nearby gravestones. This must be taken into consideration, as well as the amount of dust generated, before a decision is made to use this method in the field.

Flame cleaning always requires skilled workers. It is an expensive and dangerous treatment that uses an oxyacetylene torch.

Chemical treatments are seldom appropriate. Articles that receive this treatment must be scrupulously cleaned. If not, chemicals left on the surface can seep into crevices and cause damage. If the surface is not completely cleaned the remaining chemicals can interact with the newly painted surface causing it to fail.

Beyond surface cleaning few repairs are suitable for those untrained in the practice. The following list of common repairs and accepted methods will help in the decision as to whether to contract the aid of a professional.

- **Repairing internal areas of balustrades, statues, and other features.** It is **never** recommended to fill cast iron cavities with concrete. Concrete shrinks as it cures leaving a gap that allows moisture to come into contact with the metal. It also does not dry quickly leading to the chance of prolonged moisture contact that will cause corrosion.
- **Repairs requiring welding.** Wrought iron is easy to weld because of its low carbon content. Cast iron tends to melt at a low temperature and should not be welded using modern techniques. Modern welding applies extreme heat over a small area. Cast iron is rigid and when one area is heated the surrounding unheated areas resist and crack. Spot welding produces pitted areas where water can collect and contribute to the corrosive process. Spot welding is **not recommended**. All welds should be continuous and when finished almost invisible.
- **Brazing** (soldering with a metal having a low melting point, especially a nickel alloy) is a suitable alternative to welding and a professional should evaluate the fixture and make the decision.
- **Replacing screws, nuts and bolts.** Replacement should always be with a high quality stainless steel. Screws, nuts and bolts should be coated with the same material as used on the rest of the feature. Where new holes are needed they should be drilled slightly larger in diameter to allow for contraction and expansion.
- **Joining elements** (such as sections of fencing). Slip joints (slotted holes) should be used between connecting rails and embedded elements in fencing so as to allow lateral movement during expansion and contraction in extreme temperatures.
- **Sealing joints.** After cleaning, joints need to be sealed to prevent moisture penetration. A product such as *Silkaflex 1a* or another polyurethane based elastomeric sealant is appropriate.
- **Cleaning.** Lightly soiled cast and wrought iron can be cleaned with water under low pressure. **(Level 1)**
- When more intensive cleaning is required, only a non-ionic cleaner should be used. First test the painted surface to be sure it will hold up under the products application. Non ionic cleansers are available at conservator supply and photographic supply stores. Dilution guidelines are identified later in this chapter, and specific storage and mixing instructions are provided by the manufacturer. Proper precautions must be followed when using these cleaners. If possible it is best is to remove the ironwork and to clean it off-site.

If all cleaning efforts fail and the wrought or cast iron feature must be replaced, then professional help is required. Asking the following questions will aid in choosing a professional to assist in the work:

- Do you propose to do the work on-site or remove and repair the elements off site?
- What products and methods do you propose to use in cleaning the metal?
- Will you hand clean or do you propose to use a rust converter?
- How will you perform repairs?
- If welding is required what method do you propose to use and how will you eliminate the chances of cracking the original metal?
- What type of coatings will you be using and how will they be applied? Hand application as opposed to spray application is recommended to allow for more thorough coverage.
- Does the professional have experience with historic resources?

Painting and Coating Systems

Rust is the main cause of deterioration of both cast and wrought iron. Although rust cannot be prevented its return can be delayed with proper surface preparation, caulking and paint. A good coat of paint is the best protection for historic ironwork. The following paragraphs summarize the appropriate preparation of surfaces and the proper application of a protective coat of paint. Experience has shown that in Michigan paint should be applied every three to six years. This recommendation is based on the incidence of rust encountered during routine maintenance.

Initially evaluate the problem by determining what is causing the corrosion. Especially vulnerable to water seepage are areas where elements of ironwork are joined. Where water is drawn into joints by capillary action, corrosion can become severe.

Galvanic corrosion becomes a problem where cast iron and wrought iron come into contact. This is noticeable where, for example, a cast iron rail is placed atop a wrought iron connector. The difference in composition of the two metals causes the cast iron to be pushed up and to split from the chemical interaction of the two metals.

> Simply sealing this joint doesn't eliminate the problem . . . it only seals in the moisture and corrosion continues unabated. It is necessary to stabilize (and often) remove the corrosion . . . only then can the joint be sealed (red lead putty was originally used, but today, a clear silicone sealant is usually more practical). (*Cemetery Ironwork*, Chicora Foundation web site)

Secondly, it is necessary to seal the metal with a rust inhibiting primer as soon as possible after the surface has been cleaned and repairs have been made. Two coats should be applied per the manufacture's specifications. One coat will not sufficiently seal the surface to prevent recurrent corrosion. When applying paint, multiple thin coats are preferable to one thick coating. Thicker paint coats are more likely to fail than thinner coats and the excessive paint will likely conceal intricate patterns in the ironwork.

For paint to properly adhere to the surface it should be applied within the following temperature and humidity parameters. At the time of application the temperature should not exceed 80 degrees Fahrenheit, nor should it be expected to fall below 50 degrees Fahrenheit for the next 24 hours and the humidity should be less than 80 percent. Additionally, rain or moisture should not be in contact with the surface for at least 24 hours. In Michigan, this will often require removal of the elements to an indoor location for proper recoating. Refer to manufacturer's specifications.

Historical accuracy is important in choosing both the color and the finish of paint to be used. Not only should paint be applied with a brush to ensure a solid bond with the metal, it is inconsistent with historical accuracy to apply a sprayed or rolled finish. Historically cast iron was painted a flat black. Semi-gloss or gloss finishes would be inappropriate.

While in the past lead based paint was the norm, today because of health and environmental concerns it is only available in commercial and industrial grade paint. Because they cause immediate oxidization when they come into contact with bare metal, latex-based products should not be considered. Alkyd based paints and primers are the present recommended choice.

Replacement

If damage is excessive or an extensive amount of elements (such as fencing sections) are missing, replacements should be considered. The mixing of old with new elements is often not advisable because the composition of new metals could lead to *galvanic corrosion*. If total

replacement is being considered every attempt to follow the Secretary of the Interior's Standards and Rehabilitation Guidelines are encouraged. Old photographs and other documented records should be used to find or create a historically correct replacement. The list of resources in Appendix B offers the names of some companies that can supply historically accurate, reproduction ironwork. Sometimes molds for casting new fencing can be made from old fence elements. If the property never had an ironwork fence, consider a material or design that does not impart a sense of inaccurate history.

Zinc

Because of the unique character of this metal, repairs should only be done by trained professionals. Zinc is a nonmagnetic, brittle, bluish-gray metal that is heavier than iron but not as heavy as lead. It is quite resistant to corrosion even when untreated, and was used for monuments and statues in historic cemeteries.

There are three main types of damage to zinc monuments: breakage, corrosion and a phenomenon called *creep*. Other than simple painting, treatments of all three types of damage require a professional conservator (such as Architectural Iron in Milford, Pennsylvania; Karkadoulias Bronze Art in Cincinnati, Ohio) and are extremely expensive.

Due to zinc's brittle characteristic, breakage and separation at the seams is the most notable type of damage. Such common occurrences as falling branches, careless mowing and vandalism can damage the metal. Successful methods of repairing breakage are soldering or other repair techniques such as the use of epoxy or polyester resins.

Zinc monuments were cast from almost pure metal and the joining material was also zinc. After the castings were removed from the molds, the panels were sealed by pouring super-heated zinc onto the seams. The molten metal would soften the edges of the cast piece, thus forming a tight seal.

Zinc monuments, because of their unique characteristics, have deteriorated very little over time.

Because of its innate characteristics, zinc, even when unpainted, is not as susceptible to corrosion as cast iron. Over time it develops a patina of zinc carbonate, which protects the surface and gives it its characteristic bluish-gray cast. Bare zinc holds up well and should be left untreated. Sometimes zinc was painted, bronzed, or coated with copper. Painting and re-bronzing for statues that originally had these coatings is the suggested protection. Pitting can occur where zinc was originally coated in copper and left exposed to the weather. Repair of any corrosion problems of coated zinc, if severe, is a task for professionals.

An unusual characteristic of zinc is a tendency to sag where the underlying support system is inadequate. It is subject to deformation as it slowly sags under its own weight. This is called *creep* and can be disastrous for the monument causing the panels to split and / or the metal to sag and spread at the base. Attempts have been made to repair statues by filling their hollow core with concrete. The results have been ruinous. The expansion of the fill material causes the monument to split at the seams causing irreparable damage. This method should never be employed. The suggested repair method requires shoring up the structure with stainless steel support mechanisms that should be installed by professional conservators. Two excellent sources for information on this metal are briefs by the Association for Gravestone Studies and the Smithsonian Center for Materials Research and Education.

IDENTIFYING MONUMENT AND HEADSTONE MATERIAL

Before any headstone is cleaned or repaired it is important to know what type of material it is. The most common material for monuments in Michigan cemeteries is stone: usually granite, sandstone, limestone, or marble. Monuments of iron, concrete, zinc, and even wood are found to a lesser extent in Michigan cemeteries. An unusual example is the wood markers found in Emmett County's Middle Village Cemetery.

Below is a brief discussion of some of the most common monument materials found in Michigan. The following information on granite, sandstone, limestone and marble is from *Landscapes of Memory: A Guide for Conserving Historic Cemeteries, Repairing Tombstones*, published by Management Board Secretariat Publications Ontario and the GSA Technical Procedures website.

Sandstone

Sandstone is a medium-grained sedimentary rock made up primarily of quartz grains and cemented by a variety of binding agents (silica, calcite, or iron oxide). It is porous, soft and easily worked; with the strength depending upon the binders. Sandstone was used for monuments, but not commonly.

Sandstone is typically buff, gray, brown, red, purple, or pink in color (the latter four colors are commonly called brownstone) (General Service Administration, #04470-01). Some nearby sources of sandstone 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).

Sandstone weathers best when its end-grain faces the weather (ie, naturally-bedded). "In many nineteenth century applications however, the grain was placed parallel to the weather-side (face-bedded) for aesthetic reasons." Spalling, which is the separation and breaking away of layers or small pieces of stone; is exacerbated by the freeze-thaw cycle, and is especially common where sulfur pollution is involved (General Service Administration, #04470-01).

Limestone

Limestone is also a sedimentary stone composed principally of calcium carbonate (calcite) or calcium and magnesium (dolomite). The majority of the limestone used in Michigan was formed in a shallow sea that covered the Midwest more than 300 million years ago. It is not uncommon to see calcite streaks, fossils, or shell formations in the stone.

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. Limestone, unlike marble, does not take a polish well and therefore has a matte appearance. (General Service Administration, Limestone: Characteristics, uses and problems 04460-01) As with sandstone and marble, pollution causes significant deterioration. Breaks and cracking often occur along the bedding planes.

The Woodmen of the World organization, an agency that sold life insurance, began in the late nineteenth century. It provided plans to local carvers for member's monuments. They were originally carved limestone in the shape of tree trunks. The book *Your Guide to Cemetery Research* states that carvers preferred limestone from Bedford, Indiana, for these markers, because it was easiest to re-create the look of tree trunks. The markers are not an uncommon sight in Michigan.

Marble

Marble is a hard metamorphic stone composed of calcium carbonate. It is formed as a result of the recrystallization of limestone under the intense pressure of geologic processes.

The limited porosity of marble makes it less vulnerable to the leaching effects of water. However, it is very susceptible to damage from acidic agents. Marble can be of two types: calcite or dolomite. Dolomitic marble is much more resistant to acid damage than calcite marble. The color of marble ranges from the brilliant white of calcite to black, blue-gray, red, yellow and green, depending on the mineral composition. (General Service Administration #04455-01)

Marble used in tablets and other monuments in cemeteries is typically the brilliant white calcite type. Common problems with marble are dissolution by acid rain, and sugaring. Sugaring is a gradual disintegration of the surface of the marble, causing a rough granular, crystalline or sometimes powdery appearance. (General Service Administration #04455-01) Marble, when exposed to pollution containing sulfuric acid can have its surface converted to gypsum. This gypsum when combined with other elements forms a black crust that ultimately blisters and crumbles away the surface of the stone.

Marble was predominantly used for headstones in the 1880s and 1890s. In order to properly restore or repair marble it is important to appreciate the differences among the many varieties. Much of the marble used in Michigan's cemeteries was quarried in Vermont, for example Vermont blue marble. According to the American Standards for Testing Materials (ASTM) "marble possesses an interlocking texture and a range of grain size from cryptocrystalline to 5mm. All marble as defined here must be capable of *taking a polish*." Using this definition, a limestone such as "Tennessee Marble" (which is actually limestone) may in some instances be considered a marble.

Granite

Granite is a coarse-grained igneous rock which is composed chiefly of quartz, feldspar, orthoclase or microcline, and mica. Depending upon the mineral content, granite may range in color from light pink and gray, to red, brown and black. There are three distinct types of granite: fine grained, medium, and coarse-grained. This very hard stone was introduced into cemeteries only after the 1870s, when improvements occurred in quarrying and carving technology. Granite takes a polishing well and is relatively acid resistant. Granite is one of the most durable stones for architectural and artistic purposes.

Concrete

Concrete is distinguished by its ability to be molded into an infinite variety of shapes, as well as the potential for a wide variety of surface textures, depending on the finishing techniques and the aggregate used. Markers were often finished to resemble limestone. Concrete is gray or white unless artificially colored. Its hardness and strength when cured

depends on the mix – the proportions of Portland cement, sand, and aggregate (gravel or stone) mixed with water. Concrete is much less expensive than natural stone.

A good example of the use of concrete is the intricately shaped "tree stump" markers. Concrete's ability to be molded simplified the process compared to the much more labor-intensive process of carving limestone. The molding could be very detailed, including the bark and some limbs. Once a master form had been created, the marker could be reproduced in concrete with a minimum of additional effort.

In the late nineteenth century molded concrete tree stump markers were fairly common. Concrete was also used for small markers in Potter Fields and for table and box tombs.

Zinc (white bronze)

Zinc (white bronze) is a bluish-gray nonmagnetic, metallic element that is generally brittle but can be worked when heated. The metal is heavier than iron, but much lighter than lead. Often zinc was used for tall, commemorative monuments, though smaller markers such as tablets and ground markers were also available. The monuments are hollow and retain much of their original definition. Although durable and inexpensive, these markers came to be perceived by many as "cheap and faddish." *(Massachusetts Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries,* p. 37*)*

Zinc markers were often tall monuments such as the obelisk on the left. Tablet markers as tall as 3 feet can be found as well as smaller 1-foot markers (next page) such as these found in Newburgh Cemetery.

One-foot zinc tablet headstone.

Ground markers made of zinc, though rare, can still be found.

Small iron medallions placed beside the grave often indicated the deceased's affiliation with particular groups.

Iron

Some historic Michigan cemeteries have iron monuments or crosses. Many cemeteries also contain small iron medallions placed beside the gravestone, which indicates the deceased's affiliation with fraternal or military associations.

CLEANING HEADSTONES AND MONUMENTS

In planning for a cemetery's conservation, the care and maintenance of headstones is extremely important. It must first be decided whether or not to clean the monument. Do not attempt to return the stone to its original brightness, which would involve removing all patina.

> Often people mistake the patina of age for *dirt*. They want marble stones, for example, to be as white as when originally purchased – and this is a tragic mistake. Not only does such aggressive cleaning cause irreparable damage, but it destroys the stone's patina – and history – making it look like the stone was placed in the cemetery only yesterday. (Chicora Foundation web site)

A monument that is located in constant shade may be prone to biological growth. Cleaning the monument may remove the growth, but it will soon return, thus starting a cycle of frequent cleaning. Each cleaning has the potential to harm the stone and therefore it may be better not to start the cleaning process. (Chicora web site)

Certain plants and biological growth have the potential to harm a headstone and thus should be removed. This section of the manual provides information on the type of damage inflicted on headstones. It will also provide information on the appropriate technique, equipment and agents for cleaning monuments.

Damage to headstones falls into three classifications:

1. Environmental:
   - carbon-based deposits from industrial and vehicle emissions
   - improper cleaning and / or repair methods
   - air pollution / acid rain

2. Natural sources:
   - aging and weathering of stone
   - settling of the stone
   - organic growths, including lichen, algae, and fungi
   - climbing plants and vines

3. Human-inflicted:
   - neglect
   - vandalism
   - improper use of maintenance equipment such as mowers and weed whackers

All three types of damage will most likely be encountered. The following guidelines will help in determining what can and should be done. Some of the tasks require an experienced conservator and should be handled accordingly. Before beginning any cleaning program, become familiar with the following important principles. These principles have been compiled from a variety of sources such as *Grave Concerns, A Preservation Manual for Historic Cemeteries in Arkansas; Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones;* the Chicora Foundation, and the National Center for Preservation Training and Technology.

Before you begin:

- A condition survey should be completed on the stone prior to cleaning. Photograph the stone before starting, and again when the cleaning is complete and the stone is dry.
- Keep a record of the cleaning date, the methods and chemicals used, and any immediate change that was noted. Photography is also recommended to record the critical cleaning steps and results. These records should be stored with other cemetery documentation.

Cleaning parameters:

- Do not attempt to return the stone to its original brightness, which would involve removing all patina.
- Do not clean any stone if there is a possibility of freezing temperatures within the next seventy-two hours.
- When possible, clean stones on a cool, overcast day so that evaporation and drying will occur more slowly.
- Limit cleaning of stones to not more than once every four to six years. Cleaning may result in some wearing away of the surface of the stone.

Guidelines for Cleaning Monuments:

1. Evaluate the general condition of the monument. Only a sound stone should be cleaned. Carefully sound (gently tapping the surface with a knuckle) the stone to determine if there are any underlying hollow areas, as evidenced by a hollow tone. If hollow areas are detected, do not continue with cleaning or handling; an experienced conservator should be consulted.

2. Do not attempt to clean the monument if any cracks, flaking or scaling, or eroding granular surfaces are present. Again, any attempt to clean a stone that is less than fully stable should be left to an experienced conservator.

3. **Determine the type of soiling** in order to select the most effective manner of removal. Types of soiling include:
   - carbon or soot
   - ordinary dirt
   - organic (algae, fungi, lichens, mosses)
   - climbing plants
   - efflorescence (salts)

4. **Always start with the gentlest effective method for cleaning headstones.** Often a simple rinse with water and a natural bristle brush is all that is needed. If rinsing with water is not sufficient, carefully proceed with a recommended cleaning agent.

5. **Test the entire cleaning process in an inconspicuous area** on the monument before applying it to the total monument. Allow to dry for several days and check for adverse reaction.

6. **A good supply of water is <u>mandatory</u> when cleaning stones, and when using any type of cleaning agent.** Running water from a garden-type hose is preferred, but spray bottles will suffice for small jobs. Clean, *unused* garden sprayers that hold one gallon or more of water are convenient.

   **Note: Potable water is the ideal (but not absolutely necessary) because this implies that the water is free from objectionable amounts of chemical, minerals and impurities which could possibly harm the headstones. (John Spaulding, AGS Research Clearinghouse Coordinator)*

7. **Do not allow cleaning solutions to dry on a monument.** Keep the agent wet during the cleaning process. If allowed to dry, residue from chemical cleaning solutions can create a blotchy appearance, provide a medium for future bacterial action, resulting in more staining and accelerated deterioration.

8. **A cleaning procedure that is recommended for one specific application is not applicable for all situations.**

Equipment needed for cleaning monuments:

- A variety of sizes and shapes of high quality natural bristle brushes. Use only brushes without dyes in the bristle. A variety of sizes and bristle stiffness is recommended. Brushes with colored handles are **not** recommended because inadvertent contact with the monument may leave a colored streak on the stone.
- Protective eye glasses or goggles, and rubber gloves
- Toothbrushes for intricate carvings
- Wooden craft sticks or shims for scraping debris or growth off stones
- Clean sponges (closed cell, cosmetic-type sponge only; this avoids remnants of the sponge remaining on the stone)
- White rags
- Plastic pails (**avoid metal containers** which may damage stones by incidental contact)
- Q-tips for test spots, and toothpicks for small recessed areas
- Compressed air (60 psi maximum) will assist in clearing off loose debris and dirt. The compressor should have a pressure regulator to avoid damage due to excessive pressure. A small broom can also be used.

Tools and Equipment to Avoid:

- **Never use metal tools** while cleaning stones. Tools such as wire brushes, putty knives, and shovels etc. can severely damage old stones.
- **Do not use any type of adhesive tape**, which may leave a residue on the stone.

General Cleaning Process

1. **Pre-wet the monument** with **clean** water before applying any chemical solutions. Wetting the surface avoids excessive penetration of both cleaning solutions and soil into the stone, and helps to soften the soiling material.
2. Clean the monument **on all sides from bottom to top** to avoid stains and streaks. Rinse frequently during the process.
3. Do not use a dry brush on the stone. Dip frequently in water to reduce friction on the stone – or have a hose running with a constant flow of water over the stone as you brush.
4. To ensure that stones have been properly rinsed, check the pH using a test strip. A pH of about seven is desirable.
5. **To repeat: never allow a cleaning solution to dry on the stone.**

Often after simply training and with proper supervision, even young volunteers can be used to clean headstones. Here a young volunteer uses water and a natural bristle brush to do the initial cleaning.

Removal of Climbing Plants/ Vines

Climbing plants, such as vines and ivy, although rooted in the ground, will sometimes attach themselves to a headstone. Allowing plants to remain on headstones poses several preservation problems, including:

- Holding moisture against the surface of the stone
- Damage to the soft surfaces of the marker by root expansion in the interior of the stone and subsequent chipping of small areas on the surface
- Erosion of mortar joints by invasion of the roots
- Obscuring the inscription
- Impeding access to the stone for making repairs

The following recommendations are taken primarily from Chicora Foundation's training seminars. Before attempting to remove such growth, carefully examine the stone to see if the roots of the plant have compromised mortar joints, or have become imbedded in the surface of the stone. Caution: never pull vines off of a monument because it may damage the stone.

- Cut the plant off at the base of the growth using pruning shears.
- If the vine is large, cut it every six to twelve inches, leaving any growth adhering to the headstone.
- Peel back the bark one to two inches on either side of the cuts.

- Apply an herbicide, such as Chevron *Brush-B-Gon* or Monsanto *Round-Up*, with a small paintbrush to treat the exposed plant layers. Also apply the herbicide to cut areas on the stump.
- Be careful that no herbicide comes in contact with the headstone. 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.
- 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 from the monument. Wetting the 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 natural bristle brush.

Removal of Organic Growths

In urban areas, headstones may be covered with a layer of sooty carbon residue from industrial and vehicle emissions, which can prove very difficult or impractical to remove. It is usually black in color and for this reason can be confused with certain other growths such as fungus and algae. The following test will determine whether the soiling on a headstone is dirt, carbon or soot (inorganic), or an organic growth:

- Dip a cotton swab in household bleach and touch the black deposit in an inconspicuous place (e.g., the lower rear corner of the marker).
- If the soiling remains black where the bleach swab touches the area, it is likely to be dirt, soot and other inorganic stains, which will not change color.
- If the test area turns light brown, green, or disappears, then the condition is organic growth. *(Chicora website; Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones,* p. 18)

Lichen, mosses, algae, and fungus commonly grow on headstones. Some of these growths may appear to be black; resembling the sooty deposits left by carbon residue, but upon closer inspection may appear multicolored. These organic growths trap moisture on / under the surface of the stone, and their roots may invade the stone, causing damage to the binding agents that hold the stone together.

Some lichens secrete organic acids that can destroy calcium carbonate, which is the primary component of limestone. These lichens are considered *lithophagous* because they "eat" the surface of the stone. They are particularly harmful to limestone, marble and sandstone. *(Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones,* p. 18)

Lichen and other organic growths can be treated with the architectural anti-microbial product, D-2, to prevent the damage that these growths cause. D-2 can be sprayed or brushed onto the growth to loosen a broad spectrum of biological deposits. D-2 has several attributes that make it very desirable:

1. It is non-toxic and biodegradable
2. It kills most bacteria within several minutes
3. There are no special precautions for handling and storage
4. It does not cause damage to headstones
5. It is harmless to landscape plants

When using D-2, thoroughly wet the surface of the stone, apply the liquid product, either full strength or diluted (1:1 to 1:4 with water), using roller, brush or sprayer. Then gently scrub the surface with a high quality, natural bristle brush and allow the D-2 to stay on the surface for one to ten minutes (taking care not to allow the stone to dry). It may be necessary to repeat the process. Finally rinse the surface thoroughly with water. (Chicora Foundation website and Cathedral Stone Inc.)

Pressure Washing and Sandblasting Not Acceptable

Use caution when working with monument and restoration specialty companies, because some still use high-power pressure washing for cleaning stone and metalwork. Experience has shown that older stones that have developed small fissures and subtle weaknesses are more likely to fail, even under the lower pressure of a typical 1000 psi consumer pressure washer. Sandblasting, whether sand, baking soda, or walnut shell as media, is too abrasive for older headstones

Instead of power washing or sandblasting, it is recommended that a garden hose, delivering a maximum of 60 psi, be used. Pressure higher than 60 psi has the potential to remove the outer surface of the stone, and can blast off raised lettering and deteriorated surfaces before the operator becomes aware of the damage.

Be sure to have an ample supply of water available so that any deposits or cleaning agents can be thoroughly rinsed off before drying. When cleaning products are not totally rinsed from the marker, accelerated soiling and damage can occur.

CLEANING AGENTS

When working with volunteers, it is recommended that cleaning agents be limited to water, D-2, and non-ionic detergents such as Vulpex, Photo-Flo, and Orvus. However, when conservation workers are more qualified, or when volunteers are working under the close supervision of a professional, the other options listed below may be used.

Cleaning Agents — According to Type of Agent

Tracy C. Walther, a member of the *Association for Gravestone Studies* and an architectural conservator, recommends the following:

A. Soaps and Detergents

Recommended:

1. Non-ionic detergents (e.g., Photo-Flo, Orvus and Vulpex) are recommended because they are electrically-neutral cleaning agents that neither contain nor contribute to the formation of soluble salts. Because they provide better wetting of the masonry surface, non-ionic detergents facilitate removal of general soiling.

Agent	Mix Rate (by volume)	Availability
Vulpex	1 part Vulpex per 6-7 parts cold water	Conservation, janitorial, and photographic suppliers
Orvus	1 oz per 5 gal water	Farm and feed store
Photo-Flo	1 oz per 5 gal water	Photo supply store

Not Recommended:

1. Soaps (e.g., Ivory) are *not recommended* because they are rendered insoluble by calcium ions present in masonry and hard water. Soaps may also produce free alkali and fatty acid salts that can damage stone.
2. Commercial household detergents (liquids and powders) are generally chemically complex synthetic compounds that frequently contain additives that may be detrimental to masonry. Detergents may cause the formation and deposition of soluble salts in masonry.

B. Acidic Cleaning Materials — Acidic agents are never recommended

Hydrochloric or muriatic acid, phosphoric acid (e.g. Lime Away, Naval Jelly), or oxalic acids can damage headstones. Hydrochloric or muriatic acid may result in ferrous chloride (rust) staining and the deposition of soluble salts.

C. Alkaline, Corrosive, and Biocidal Cleaning Materials — Recommended:

1. Calcium Hypochlorite (also known as Chlorine, HTH, Shock Treatment), a *granular* product, is recommended for the removal of biological growth. This product must not be confused with liquid chlorine or sodium hypochlorite (household bleach) — *which are not recommended*.

   Calcium hypochlorite is recommended for use only by experienced conservators **(Level 3)**. It is available from swimming pool suppliers. A suggested cleaning mixture is one ounce calcium hypochlorite per gallon of hot water. This product should be used only when a water hose with good water pressure (e.g., 50-60 psi) is available for rinsing the cleaning solution from stones.

2. Ammonium Hydroxide (e.g., household ammonia): Solutions of household ammonia are recommended for cleaning of light colored stones. Ammonia is particularly effective for the removal of biological growth. A suggested cleaning mixture is one cup of ammonia to one gallon of water. When using household ammonia be certain that it does not contain dyes or fragrances that may prove harmful to certain stone.

> *Caution: When using a cleaning mixture that includes household ammonia, damage to bronze or other metal components can result.*

3. Quaternary Ammoniums (e.g., algaecides or biocides for swimming pools) have a slightly different chemical structure than ammonium hydroxide. They are especially effective for the removal of biological growth, particularly stubborn black algae. Quaternary ammoniums, which are available from swimming pool suppliers, list ingredients such as alkylbenzyl trimethyl ammonium, benzyl alkyl dimenthyl ammonium chlorides, or benzyl aklyl dimethyl ammonium bromides.

Not Recommended:

1. Sodium Hydroxide (e.g., Borax), and Sodium Hypochlorite (e.g., Clorox, liquid chlorine) *are not recommended* for general cleaning of stone.

2. Trisodium Phosphate (e.g., TSP, Calgon) is *not recommended* for cleaning monuments. It can cause the formation and deposition of soluble salts. "Calgon" contains trisodium phosphate and a number of additives that may be detrimental to monuments.

3. Fantastic All Purpose Cleaner, Formula 409, Spic and Span, and abrasive cleansers are *not recommended* for cleaning monuments. Avoid products containing sodium chloride, sodium sulfate, sodium carbonate, sodium bicarbonate, and ammonium carbonate, due to the propensity to form and deposit soluble salts in monuments.
   (Walther, Tracy C. 1990, *Cleaning Masonry Burial Monuments*. The Association for Gravestone Studies, Greenfield, Massachusetts)

Cleaning Agents for Specific Stone Types

Another leading authority on cemetery preservation, Lynette Strangstad, in her book *A Graveyard Preservation Primer*, recommends cleaning solutions according to stone type. They are listed in reverse order of cleaning strength; i.e., weakest first (which is the preferred order of application):

Marble and Limestone:

1. Water only.
2. Non-ionic cleanser such as Photo-Flo, (available at photographic supply houses) Triton-X 100, Igepal (available from conservators' supply houses), and water.
   – *Use one ounce to five gallons of water*.
3. Vulpex (a soap) – available from conservators' supply houses).
   – *Use one part Vulpex to two to four parts water*.
4. Household ammonia. (diluted)
   – *Use one cup per four cups of water*.
5. Calcium hypochlorite. Use only to remove biological growth. Available as swimming pool disinfectants.
   – *Use one pound (dry weight) to four gallons of water. The water must be warm*.

Sandstone:

1. Water only
2. Non-ionic detergent and water (see Marble)

Subflorescence and Efflorescence

Subflorescence is caused by the deposition of crystalline salts below the surface of a stone.

Some of the causes of subflorescence are:

- wicking of moisture (contaminated with salts, fertilizers or herbicides) into the stone
- using incorrect cleaning compounds
- using the wrong kind of mortar for masonry repairs
- air and water pollution.

Subflorescent salts can be drawn out of a stone by applying a poultice. Application of a poultice may require hiring a professional conservator.

Efflorescence is caused by the deposition of the salts on the surface of a stone; resulting when subflorescence migrates to the surface of the stone and becomes visible.

> Efflorescence is an indicator of excessive salts. In order to prevent or reduce the damage from subflorescence, causes need to be identified and steps taken to eliminate the source(s). Delamination (breaking off of layers) of the stone surface can eventually result from subflorescence.

Poultices are water-based pastes made from *diatomaceous earth, fuller's earth* or *kaolinite* applied over stained areas on the monument. The following are the steps in applying a poultice:

- Mix the chosen product with water to the consistency of peanut butter.
- Apply the poultice to the soiled area – 1 / 4 – 1 / 2 inches thick.
- Wrap the area with plastic sheets to avoid premature drying.
- Remove the poultice when nearly dried – as indicated by cracks in the poultice material. In the process of drying, the poultice draws out the stain in most instances.
- After removing the poultice, the stone must be thoroughly cleaned with water to remove poultice residue.

> For specific stains, special products can be added to the poultice to enhance performance. Conservator supply companies, such as Granite City Tool, offer premixed poultices.

Sealants

Do not apply any type of sealant or consolidant to a headstone. The Chicora Foundation, NPS Preservation Briefs, and the Association for Gravestone Studies all agree with this advice. A stone in contact with the ground continues to wick-up moisture and must be allowed to "breathe" and expel the moisture, although some sealing products claim to seal the surface of stone while still allowing the stone to breathe. Because of the risk of preventing the migration of moisture, applying any type of sealer or consolidant should be left to trained conservation professionals, and used only in very specific applications.

REPAIRING HEADSTONES AND MONUMENTS

Overview – The following are important conservation principles for repairing or otherwise conserving grave markers / headstones. The Association for Gravestone Studies, the National Center for Preservation Technology and Training, and other cemetery conservation groups, offer seminars on the topic and are sources of additional information that may be helpful.

While the repairs in this manual are primarily applicable to stone monuments and markers, the general principles may apply to any preservation or conservation repair. The italicized comments are intended to clarify the repair criteria, some of which may seem to be contradictory:

- The repair is less strong that the original.
  Additional damage to the stone could result if the repair material is stronger than the original stone. If a new break occurs, the intent is to avoid any more damage to the original stone; i.e., the repair should fail, not the stone.
- The repair is reversible.
  A repair should be able to be disassembled without damage to the stone. This is desirable because improved repair procedures may become available in the future.
- The repair respects the original material of the marker.
  The repair methods and materials are compatible with those of the original marker, and minimize the possibility of further damage or discoloration to the stone.
- The repair is as historically accurate as is reasonable and possible.
- The repair does not inhibit the natural permeability and breathe-ability of the stone.
  Avoid adhesives, coatings, sealers or other repair materials that may retain moisture or affect breathe-ability, which can result in secondary damage.
- Before attempting to repair headstones in a historic cemetery, inspect stones carefully to assure that they have not developed previously unforeseen cracks, spalling or other weaknesses that would affect the repair.

General Caution. Repairing old stones requires training in specific skills and patience. Before starting complex projects such as multiple-break repairs or infill repairs, the practitioner should become totally familiar and comfortable with the repair methods.

Familiarity with the types of stone, with characteristics of mortars and epoxies, and with other equipment is required prior to working on an actual historic headstone.

> If possible, practice on discarded stone fragments or on landscape stones. Each type of repair material; e.g., two-part epoxies and mortars, have unique characteristics. A wide variety of mortar recipes and proprietary infills are available (e.g., Jahn restoration mortar products from Cathedral Stone Products, Inc.).

Documentation

Before starting a repair, photograph each side of the stone. Rinsing gently with water may reveal parts of the inscription not previously visible, as well as the name of the stone carver. Document all information regarding the condition of the stone and any existing repairs that are visible, including materials and methods, and any pins, braces or straps previously used. If a previous repair has failed, record that fact and the reason for failure, if known. The purpose of accurate documentation is to help future conservators if new methods in the future provide the opportunity to improve the condition or the permanence of the repaired stone.

Record the repair process with photographs and notes, and document the condition of the stone when the repair is complete. Document all information on a headstone survey sheet. Identify all actions taken from start to finish, including the type of adhesive material or mortar mix used. If holes are drilled for blind pinning, record their locations and size, and the type and size of dowels used. Specifications or formulas for metal or other materials used should be documented, as well as any other treatment such as cleaning or infill. No action should be overlooked or considered too insignificant. If a commercial mortar product was used, Material Safety Data Sheets [MSDS] should accompany the records. The MSDS, available from chemical and mortar manufacturers and suppliers, should be kept with all other repair information records.

Fragility and Soiling

Always handle stones as extremely fragile items. When wet, stones are much more susceptible to breaking. A stone that has been lying on the ground absorbing moisture can take as long as a month to dry, depending on conditions. When stones have dried,

efflorescence may appear on the surface. Any efflorescence or soiling should be removed prior to the repair. A poultice can be used to draw out the contaminating salts. See "Cleaning" section for specific poultice application practices.

Lifting and Moving the Stone

Headstones weigh 160 to 180 pounds per cubic foot. Use extreme care when lifting or moving stones to avoid personal injury or damage to the stone. When moving the stone, support the weight of the stone evenly, using nylon straps and boards to equalize the load. Larger stones can be moved by two persons using a lifting pole with nylon straps, or with lifting devices such as a portable crane, or a tripod with chain hoist. Stones should be protected from contacting chains or other metal lifting objects. Only experienced conservators should move heavy stones.

> Handling Cautions: Metal bars and shovels should not be used to pry or lift a monument or headstone. Do not try to lift heavy stones without the assistance of another person. Even when using lifting equipment, another person should be available to assist if needed.

COMMON REPAIRS

The following are the most common types of repairs on stones in historic cemeteries, all involving slab markers/tablet stones. Repairing large or complex stones should be reserved for conservation professionals with the necessary experience and equipment. The following repairs are listed from easiest to the most difficult:

- Correcting tilted stones that were set directly in the ground
- Resetting fallen stones that were set directly in the ground
- Stabilizing and resetting a stone or a concrete base
- Replacing a marker into a base
- Making concrete bases for partial slab or tablet markers
- Repairing a snapped marker
- Infill of missing stone fragments using mortar

Correcting Tilted Slab or Tablet Markers Set Directly in the Ground (Not In Bases)

Tilted markers are among the most common problems in older cemeteries. Slab or tablet markers, installed directly in the ground (with approximately one third of the stone below grade), may have been standing for a century or more. Stones, especially in sandy soil, may have tilted due to shifting or the effect of gravity; or may have sunk, partially concealing the inscription. A stone that is leaning may become warped. In the worst case, if not corrected, the stone could eventually fracture due to its own weight. Generally, if the marker

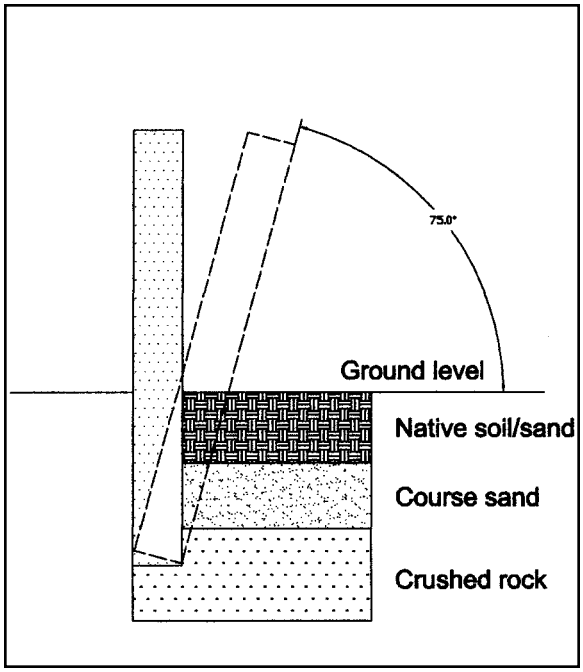
is leaning less than fifteen degrees from the vertical, intervention to set it upright is not suggested. A stone that has sunk only minimally will usually not need to be removed unless the inscription is obscured below grade.

Straightening a tilted marker is fairly straightforward project and involves minimal cost. Trained and supervised volunteers can usually do it. Check to be sure that there are no unseen conditions that would preclude straightening the stone without damage. Removing the stone completely from the ground will usually not be necessary.

Straightening Tilted Markers

2

- Hand-dig the ground around the stone. Remove the sod with a spade-shovel so that it can be easily replaced. Do not allow metal tools to contact the stone. Unless the stone has sunk so that the inscription is obscured or repairs to the stone are needed, it is usually not necessary to remove the stone from the hole.
- Excavate to the depth of the bottom of the stone. Assure that the sides of the hole are wide enough so that when the stone is straightened, the edges of the stone will not hang up on the sides of the hole, causing undue stress.
- Straighten the stone to vertical, checking for plumb. While supporting the stone, backfill the hole one-third full with heavy aggregate such as broken brick or 21-AA stone (from a cement yard) and tamp. Add coarse sand and gravel mix (aggregate) and tamp, leaving three to four inches for topsoil and sod. Place landscape fabric atop the aggregate, to maintain drainage by preventing dirt from filtering into the aggregate.
- Replace the topsoil and lightly tamp. Mound up soil to allow for settling. Replace the sod. After two or three weeks, check for settling around the base of the stone, adding more soil as required.



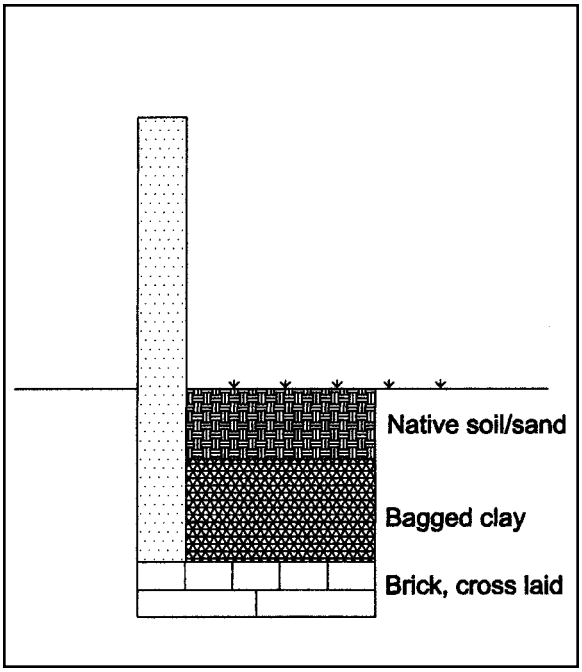
Straightening a marker is a common task done usually when the marker is out of plumb by 15 or more degrees. Always use caution when moving a stone. Trying to force a stone can cause it to snap.

Straightening Markers When The Stone is Removed

2 If the stone must be removed temporarily, additional preparation of the bottom of the hole is required to prepare for reinstallation. See the *Lifting* section for instructions on removing the stone from the hole.

- Excavate the existing hole to a rectangular shape, with vertical sides, and level bottom. The front wall of the hole remains at the original location of the front face of the stone. To achieve a solid base, tamp the bottom with a length of 4 x 4 lumber or other tamper.
- The depth of the hole is established by the desired height of the headstone above the ground. If possible, set the height so that the lowest inscription is visible – ideally a minimum of two inches above grade. The actual height at which the stone was previously set may be visible from staining on the stone (witness marks). The depth of the hole may vary depending on the following alternative "fill" method selected:
  - Alternative 1 – Stone and aggregate fill – Lay dry flat stones in the bottom of the hole. Lower the headstone into the hole with the front face of the stone against the front wall of the hole, centered side-to-side. Straighten to vertical, checking for plumb. While holding or bracing the stone, backfill with heavy aggregate (such as broken brick or 21-AA stone from a cement yard) to half-fill the hole, and tamp. Next add coarse sand and gravel mix to within a few inches of the top, and tamp. Place landscape fabric atop the aggregate, to maintain drainage by preventing dirt from filtering into the aggregate.
  - Alternative 2 – Clay bricks and bagged clay fill – As an alternative to aggregate fill products above, line the bottom of the hole with unfired clay bricks, and use bagged clay as backfill. A first course (layer) of unfired clay bricks is laid on the bottom, with a second course laid perpendicular to the first. Lower the headstone into the hole with the front face of the stone against the front wall of the hole, centered side-to-side. Straighten to vertical, checking for plumb. While holding or bracing the stone, backfill with bagged clay to half-fill the hole, and tamp. Add topsoil to within a few inches of the top and tamp until firm. Clay provides a concrete-like and extremely solid base and support for the stone, and is easier to transport and more volunteer-friendly than aggregate. Clay is used on baseball and softball fields; and may be available in municipalities' parks departments, as well as commercial nurseries. (One of the authors of this text developed this technique using clay material in collaboration with other professional conservators.)

- Add more topsoil and lightly tamp. Mound up soil to allow for settling. Seed or replace the sod. After two or three weeks, check for settling around the base of the stone, and add more soil as required.



The drawing shows the cross section of a repair when clay bricks are used as a base and bagged clay is used to strengthen the repair.

Resetting Fallen Markers Set Directly in the Ground – Not in a Base

2 Slab or tablet stones in historic cemeteries may have fallen to the ground, and often are obscured from view by leaves, dirt, and turf. The stone may be stained by the decaying of organic materials, and damaged by maintenance equipment or by people walking across the stone. Stones lying on the ground are also continually subject to absorption of moisture, which weakens the stone. Markers that have fallen can be reset using the following procedure:

- Preparation – Gently remove any debris or turf covering the fallen marker. Using wooden shims carefully excavate around the perimeter of the stone. Extreme care should be exercised because moisture-saturated stones are very brittle and susceptible to snapping or chipping. Photograph the stone to document its condition.

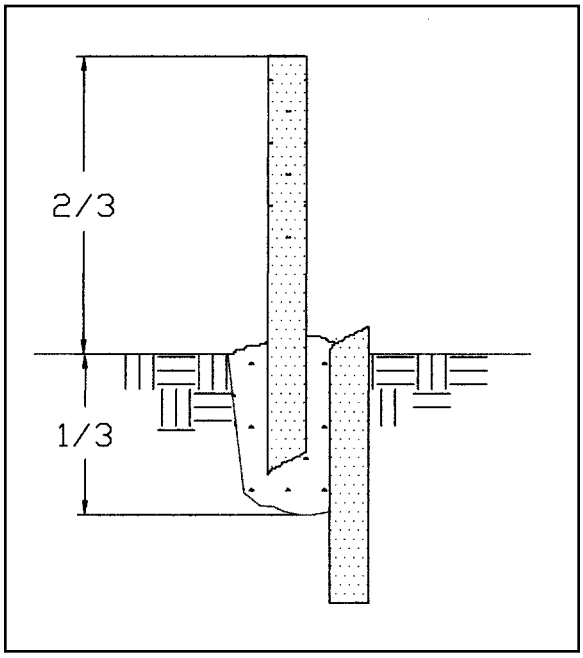
- Removing and Resetting the Stone – Carefully excavate under the stone to allow for insertion of nylon lifting straps. Hoist the marker from the ground

using nylon straps, supporting the weight evenly. Transfer the stone to a level base of two-by-fours to support the full length of the stone, and permit air circulation to allow the stone to dry. Allow space for replacing the nylon straps under the stone later for lifting. Depending on the weather, it can take a month or two for the stone to dry. Moving the stone into a heated building will accelerate the drying process. Remove any residual dirt by gently brushing. Total cleaning, including removal of efflorescence, should be accomplished after the stone has been fully dried and reset. Align and reset the stone using the method described in Straightening Tilted Markers (above).

Temporary Repairs of Snapped Headstones

2 When time and resources are limited it may be prudent to temporarily reset pieces of monuments until a better repair can be made. If stones have been snapped off and their "cousin piece" is still in the ground, this temporary fix can help to prevent additional damage. See sketch.

Remove the broken top half of the stone from the ground. Excavate a hole for the broken stone in front of the remnant, to a depth of one third the height of the fragment. Place the stone in the hole in an upright position. Fill the hole using clean sand or gravel as backfill (to avoid staining) and tamp firm. Although temporary, this repair can be an effective stopgap measure that can preserve the stone by keeping it upright until proper repairs can be made, as well as improve the appearance of the cemetery.



As a temporary fix simply resetting the broken piece in front of the parent stone is a reasonable action and one that can quickly improve the look of the cemetery.

Types of Monument Bases Supporting a Headstone and Marker

There are two styles of monument bases:

1. Slot-style monument bases, which may be made either of stone or concrete, have a narrow recess or slot in the top surface into which a tablet marker is inserted.

2. Flat-top bases made of stone that matches or complements the headstone, are usually set above grade and support a flat-bottomed marker. (See picture of stone base(s) with marker). The marker is adhered to the base either by a mortar bed, or occasionally with dabs of epoxy.

Tablet markers (photo A) are often inserted into a slot style base (photo B).

A ›

‹ B

Obelisks (photo C) as well as larger, thicker tablets can be set onto a base (photo D).

‹ C

D ›

Stone bases, whether slot-type or flat-top, usually protrude above grade from about two inches up to the full height of the base. Cast concrete bases are usually set slightly below grade (i.e., not visible).

A typical problem on the slot-type base is damage around the slot where the tablet is inserted into the base. If not repaired, installation of the marker is likely to fail. Broken pieces on stone bases can often be repaired with epoxy. Missing pieces can be recreated with infill mortar mix. Shifting of the base may have occurred, due to tree roots or heaving due to frost. Damage to a concrete base is usually corrected by re-casting it in concrete vs. repairing (See *Making a Concrete Base*).

The following sections will cover resetting bases, repairing the slot, replacing the marker, and making concrete bases.

Resetting Monument Bases

Tree roots or frost heaving can cause a monument base to shift or lift. The process for leveling and stabilizing a shifted base applies to both stone and concrete bases:

- Carefully excavate around the base of the marker. Rough unfinished surfaces on the periphery of a stone base can often provide an indication of the portion of the base originally set below grade. "Witness marks" or staining on the base may also indicate where the stone contacted the earth. After the sides of the base are exposed, check for damage.
  - If the stone base is damaged *around the tablet slot*, repair the slot prior to resetting the base and inserting the marker. This procedure is covered below.
  - Rejoin large broken sections of the stone base using epoxy. The resulting repair can usually be expected to withstand the forces encountered when the base is lifted.
  - Smaller repairs in other areas of the base, including infill replacement of missing sections, can be accomplished after the base is reset, before replacing the earth fill.
- If the base must be lifted, use the appropriate lifting techniques (previously described) to lift and place it on a lumber base for support. <u>If the marker is still attached to the base, the following instructions will avoid damage to the marker</u>:
  - Do not lift the base using the marker.
  - Always support the marker while lifting the base.
  - Do not lay the base and marker assembly on its side as the marker or the base could be damaged.

- The surface on which the base will be replaced must be firm and level. If the ground has heaved, reestablish a flat surface. Remove any roots that originally caused the problem, but do not disturb the soil any more than necessary. Level the surface and add *cement sand* or other fine aggregate on top of the soil. Firmly tamp each layer, as loose soil makes for a poor foundation.
  - If necessary, a concrete pad can be poured atop the aggregate to raise and/or stabilize the base. The pad, which is one or two inches wider and longer than the base and two to three inches thick, is hidden below ground. However, an aggregate base is usually adequate.
- Before lowering the base onto the amended and tamped aggregate, or onto the cured concrete pad, apply a one inch-thick layer of mortar to stabilize the base. Use the recommended mortar in this book.
- Lower the base onto the prepared mortar surface. Support the base at the corners and adjust the base to level. After the mortar has dried (usually two days), complete any necessary infill repairs on the stone base (see procedures below). Backfill the soil around the base, and seed or sod the area.

Replacing a Marker in Its Base

A common restoration project involves replacing a tablet marker (two to three inches thick) into the slot in a stone base. The slot is about one to two inches deep, and 3/4 inch wider than the thickness of the marker. Patching concrete or epoxy adhesive should not be used, because concrete is not compatible with stone, and an epoxy repair is not easily reversible. The following is the recommended procedure:

- Inspect the base for damage, especially the area around the slot. Inspect the stone to be placed in the base.
  - If the base is damaged in the area of the slot where the tablet is inserted, the slot must be repaired prior to the next step. Use epoxy to join those pieces that have a close fit, and use infill mortar mix (see Infill section – below) if needed to fill voids from missing pieces of stone.
  - Missing areas *on the periphery of the stone* can be repaired after the base is replaced – using *infill mortar techniques* – before replacing the earth fill around the base.
- After the repairs to the base have cured, reset the base in the ground and install the marker:
  - Remove all fragments of old mortar from the base and stone prior to applying new mortar. Dampen the slot and the bottom of the stone with water spray so that the stone does not absorb moisture from the mortar.

- Using the recommended mortar mixture (see below), or a proprietary mortar such as Jahn Products, apply a one-half inch layer of mortar to the slot in the base. Place two or three one-quarter-inch thick 'setting cushions' (plastic pads available at monument dealers) in the bottom of the slot to maintain the thickness of the mortar. *Note:* proprietary mortars may require certification from the supplier to purchase.
- Lower the stone into place into the slot and support with wooden braces. Work mortar into the gap between the base and the stone, using wooden shims. Continually check the stone for plumb. Fill the gap around the headstone and create a small one-eighth inch fillet of mortar at the base to help shed water (a larger fillet [smooth, concave bead] would be prone to failure).
- While the mortar is still wet, re-check for plumb, and check the braces for stability. After the mortar has dried, usually in a day or two, the braces can be removed.

After the repair has been made, securing the marker is imperative. The use of clamps, wooden braces and shims assures the marker is not touched by the metal clamps, and also prevents the marker from moving while the repair treatment cures.

Making a New Concrete Base for Broken Slab or Tablet Markers

Unconventional repair methods may be required in cemeteries that have been vandalized or left unattended. One method is setting a fallen stone fragment upright in a base of poured concrete. Resetting the stone in a base protects the stone and displays more of the surface than if the stone were to be set into the ground. A new concrete base can be poured in a workshop under controlled curing temperatures and protection from rain.

> *Note: Creating a base is the only application for concrete in historic cemeteries endorsed by organizations such as the National Park Service, the Association for Gravestone Studies, and other professional conservation groups. "Common" concrete is normally inappropriate for historic cemetery restoration work. When properly installed, the headstone is protected by the layer of mortar from the damage that would result from contacting the surface of the concrete.*

Construct the female form for the base using dimensional lumber – 2 x 10s or 2 x 12s:

- Minimum depth – six inches plus one half inch for each 12 inches of stone height.
  e.g., the base of a three foot tall stone is about eight inches deep
- Minimum inside dimensions – top view: six to seven inches larger than the thickness and width of the stone, respectively.
  e.g., the base for a stone sixteen inches wide by two inches thick would have dimensions of twenty-three inches by nine inches
- The form for the base should create a slight (five to ten degree) downward pitch from the slot to the edge, allowing water to run away from the stone. Use screws or duplex nails (double-headed nails) to facilitate disassembly after the concrete is cured.
- To prevent the concrete from adhering to the form, cover the sides of the form with a thin plastic sheet (garbage bags or 0.5 mil drop cloth), or coat the form with linseed or motor oil.

Craft a male form or plug from wood to create the slot in the top of the concrete base:

- The male form is approximately one inch wider and one inch longer than the width and thickness of the stone, and at least two inches deep. The intent is to create a virtual half-inch gap all-around when the stone is inserted into the base. Cover the form with a thin plastic sheet to prevent the concrete from adhering.
- Screw the male form to the center of a 2 x 4 cut long enough to span the form for the base.

- Next pour the concrete into the form for the base, trowelling to shape.
- Depress the male form into the wet concrete, flush with the top of the female form. Attach the 2 x 4 to the ends of the form with screws. Trowel the concrete smooth, following the angle for water run-off.
- After the concrete has begun to harden (when the surface becomes dull-looking), remove the screws attaching the 2 x 4 to the female form, and carefully remove the male form exposing the slot. The intent is to remove the form before the concrete is completely cured (to permit easy removal). If the concrete around the slot *slumps*, replace the form immediately if possible, and continue curing. Allow the concrete base to harden for two days before removing the outer female form.

A wooden form constructed of 2x12 lumber makes an excellent material for making replacement bases. The shaded areas are angled away from the center so when the cement dries and the base is placed into service, water will run away from the marker.

A die is made from lumber so that when inserted into the uncured cement, a slot will be formed and the tablet stone can be inserted when the cement has cured.

In this picture the die is screwed to the form in the correct position so that a slot will be formed.

Set the base onto the prepared surface as described above. When resetting a partial stone, the top of the concrete base should be placed slightly above grade level (as opposed to hidden below-ground).

If the headstone that is being replaced into the base does not have a squared or flush bottom, reinstallation into the slot must be delayed until the headstone has been repaired so that it will sit squarely into the slot. Ideally the bottom area of the headstone that is missing could be recreated using infill mortar mix as described later. Another option is to craft the male form (see above) to replicate the shape of the bottom of the headstone into the base, so that the base accepts the out-of-square portion of the stone and holds it securely. Only as a last resort should any part of the headstone be removed to square up the bottom of the stone. Removal of stone should *never* be done when the artistic features or inscriptions will be compromised.

SNAPPED MARKERS – CONCEALED REPAIRS

Snapped tablets are common in older cemeteries. Repairing broken markers with epoxy or mortar requires extreme care. Improper repair methods can permanently alter the stone. However, the quality of the repair is not totally dependent on the conservator. Factors that may significantly contribute to the quality of the repair include the type of stone, the age and overall condition of the stone, the type of break, and condition of the surface. Three types of repairs are described in the following section, starting with the least complex method.

Two-part Epoxy Adhesives – Overview

Epoxy adhesives are a strong and an effective way to repair broken markers exposed to the elements. Epoxies are recommended not only by adhesive manufacturers but also by conservators. However, conservators should be aware of the following concerns with using epoxies on historic stone:

- Epoxy is not vapor-permeable. For this reason a preferred approach to covering the mating surface with epoxy may be to use only dabs of epoxy. This approach will permit the stone to breathe.
- Epoxy is very difficult to remove from the stone after curing.
- Epoxy tends to yellow and may break down with exposure to ultraviolet light.
- Working with epoxy requires the user to be neat, and to be very careful to avoid spills, oozing, and smearing. Any excess must be removed immediately with acetone to avoid additional damage to the stone.

Epoxies available at home improvement centers are typically not suitable for repair of historic stone and masonry. Those involved with epoxy repairs should be trained and comfortable with application practices before repairing any historic markers.

Types of Epoxy

Two types of epoxy that are recommended and used in historical cemeteries are *gel epoxy* and *low modulus/ low viscosity epoxy* (having the consistency of white household glue).

- **Gel Type –** This type is often referred to as gel or knife grade epoxy in that the consistency is much thicker (similar to peanut butter) than the low viscosity type. It is less messy to work with because it tends not to flow or leak out of cracks as easily as the low viscosity type. Some conservators recommend using knife grade epoxy for use in drilled holes when blind-pinning repair of stones.
- **Low-modulus/low viscosity –** A flexible (low-modulus) two-part epoxy that provides flexibility under stress from impact and thermal change is recommended for bonding close-fitting stone pieces, and for blind-pinning of broken stones. See appendix for recommended sources of epoxy products. Many conservators prefer low modulus, low viscosity epoxy, because it can be used for several tasks; e.g., pinning, crack stabilization, and bonding broken stone fragments.

Brands of Low Viscosity Epoxies that are recommended:

- Mastico – Available in a clear and a white version from Hilgartner Natural Stone Company. A good color match can often be achieved by adding stone dust to the clear product. www.hilgartner.com.
- Akepox 2010 – A very economical solution. Available from Architectural Stone in Troy, Michigan. The complete line of Akemi epoxy products is available through most monument dealers. Tinting agents are available.
- Barre Pak – A conveniently-packaged product that is pre-measured for consistent results. This product is very volunteer-friendly. Available in gray color in a seventy gram plastic pouch. Mixing is done in the pouch. Available at Miles Supply Company Inc., PO Box 237 Barre, VT. 05641-0237. (802) 476-3963.

Using Two-Part Epoxy

General directions for mixing epoxy (always consult manufacturers' recommendations):

- Prior to any repair, and especially before mixing or applying epoxy, the stone pieces should be dry-fitted to observe the fit of the mating pieces, and to assess the best method for repair.
- Carefully read and understand the manufacturer's specifications. Mix the two epoxy components per instructions provided.
- *Working Time* is the length of time during which the epoxy mixture is still workable and can be applied; i.e., before the epoxy begins to set. Working time at 70˚ F can vary from only a few minutes to an hour or more, depending on the type of epoxy and the amount of hardener used in the mixture. Cooler temperatures will increase the working time; at higher temperatures the epoxy begins to set up faster. *Consult manufacturer's specifications.*
- *Cure time* is the time after which epoxy achieves a high percentage of its maximum hardness and working strength; typically 24 hours at 70˚ F. Cooler temperatures increase the required cure time; at higher temperatures epoxy cures faster. *Consult manufacturer's specifications.*

Preparation of Fractured Surfaces for Repair with Epoxy

2 Inspect the mating surfaces for cracks or "sugaring" on the surfaces. If cracks are observed, consult a professional curator. If sugaring is found on the mating surfaces, abrade the surface with a wire brush to provide a sound surface for bonding.

- Dry-fit the stone pieces, and inspect for gaps and/or missing pieces. Missing pieces can be replaced later with infill mortar – see below.
- Clean the mating surfaces using water and a brush. Use denatured alcohol to clean any remaining residue. Apply acetone to dry the surfaces.

Types of Repairs

1 Type 1 Repair – Epoxy Only

The simplest method for joining sections of broken markers is using epoxy-only. This method works best for a clean break with close-fitting stone pieces. The primary advantage is that the epoxy tends to fill the cracks to the edge, with no grout or infill required. A strong disadvantage is that the epoxy, which covers the mating surfaces, minimizes the vapor permeability between the joined sections of the stone, and the repair is more permanent than the second alternative (using epoxy dabs and grout). However, because it requires no drilling or other modifications to the stone, and uses only one repair material, it may be a preferred method for non-professional conservators.

- Before applying any epoxy, the mating surfaces must be clean and dry. Mix per manufacturer's instructions and apply epoxy on both sides of the mating surfaces, leaving 3/8 to 1/2 inch uncovered margin around the edge.
- Carefully replace the upper half of the stone onto the bottom piece, and shift or rock slightly to insure full mating of the epoxy, for a good bond. If any epoxy oozes out of the crack, clean it immediately with acetone, or trim or gently peel off later when a skin has formed on the epoxy (well before it has fully cured). After assembly, use bar clamps or "C" clamps, with lengths of 1 x 2s to protect the stone from the clamps. Brace the assembly if required to prevent shifting. Remove the braces after the epoxy has cured. *See manufacturer's specifications.*
- No epoxy should be visible after the repair has been completed. The tendency for epoxy to yellow and weaken when exposed to UV rays makes this consideration important. Based on the condition of the break, it may be necessary to fill the remainder of the crack with infill mortar mix or grout.

2 Type 2 Repair – with Epoxy "Dabs" and Grout

The second method for repairing snapped markers uses dabs of low-modulus epoxy adhesive with cementitious (mineral-based) grout in the remaining cracks for additional adhesion. The grout is applied after the epoxy is cured. The following repair is for tablet stones with the top portion of the marker broken off, and the bottom portion still soundly mounted in the base or in the ground.

The three advantages of this repair: 1) It is less likely to damage to the stone, compared with blind pinning (see below), 2) the repair can be accomplished by trained volunteers, and 3) because the broken surface of the stone is not fully covered with epoxy, the stone therefore is allowed to breathe. However, applying grout, which is the most difficult part of the procedure, may require drilling injection ports (holes) in the area of the crack, and careful attention must be paid to avoid possible staining of the stone by the grout.

Applying the Epoxy – Before applying any epoxy, the mating surfaces must be clean and dry. Mix epoxy per manufacturer's instructions. Apply two or three quarter-sized dabs of epoxy (one inch [2.5 cm] in diameter) on both sides of the mating surfaces. Applying excess epoxy (i.e., over the entire mating surfaces) should be avoided, to make the repair more reversible, and to provide clean mating surfaces at the edges for the grout to bond to the stone.

Joining the Stone – Carefully replace the upper half of the stone onto the bottom piece, and shift or rock slightly to insure full mating of the epoxy for a good bond. If any epoxy oozes out of the crack, clean it immediately with acetone. After assembly, use bar clamps or "C" clamps, with lengths of 1 x 2s to protect the stone from the clamps. Brace the assembly if required to prevent shifting. Remove the braces after the epoxy has cured (see manufacturer's specifications).

Filling Gaps with Grout – Apply a mineral-based, vapor-permeable, low viscosity grout in the cracks as a supplement to the dabs of epoxy, which will improve the overall strength of the repair. If the corners of the mating surfaces are beveled or rounded, grout will fill the resulting gaps of 3/16 to 3/8 inch. Jahn M40 Crack Injection Grout (available from Cathedral Stone Products) or an equivalent product is recommended. Before working with grout, refer to the details available on the *Cathedral Stone* website. Grout injections should be attempted only after practice attempts on discarded stone fragments or on landscape stones, and only when the repair team has become comfortable with the repair process. The following is a brief summary of the manufacturer's recommendations for preparation and application:

- Wash the cracked surfaces using water to remove dirt and foreign material.
- Mix the grout per manufacturer's directions. Immediately before injecting the grout, wet the crack by flushing with water. Apply *non-staining, non-oil-based clay* (available from Cathedral Stone Products, Inc.) to the crack to act as a dam to retain the grout when injected. The intent is to prevent grout from escaping from the crack and soiling the face of the stone. *Detailed instructions for Mixing, Application, and Curing are contained on the Cathedral Stone website.*
- This method requires drilling ports or holes in the crack, using a carbide-tipped drill, to permit injection of grout. The diameter of the hole is approximately the size of the crack, and is intended to permit distribution, via injection of the grout throughout the crack. Follow the detailed manufacturer's instructions.
- Allow the grout to dry for approximately forty-eight hours. After the grout has cured remove the clay from the stone.

> *Caution:* If grout is left to dry on a stone, it will permanently damage the stone. Clean up any grout overflow immediately with water. Extreme care should be exercised.

Type 3 Repair

Blind Pinning (modified from the Oregon Historic Cemeteries Association website / CRM Bulletin)

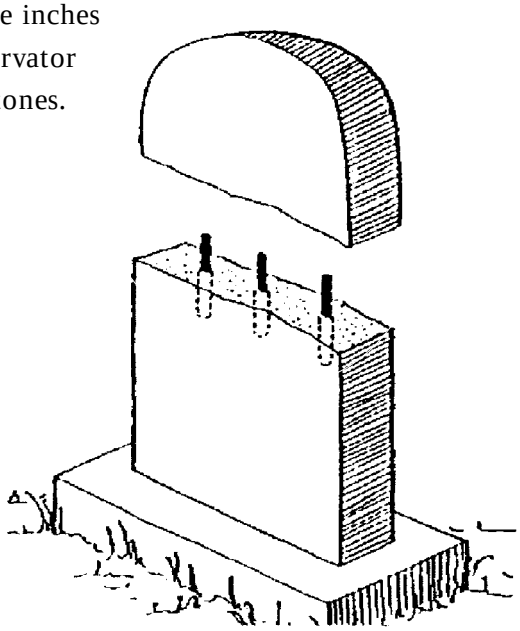
Overview – A clean break between sections of gravestones may be repaired by blind pinning, which involves drilling holes into both stone fragments and inserting nylon or stainless steel reinforcing pins or rods. Epoxy is used in the holes to adhere the pins.

Blind pinning is the most difficult of the three repair processes, as well as the most risky and most permanent repair, compared with repairs that do not use pins. Therefore, it is usually not the preferred method of repair, especially for non-professional conservators.

Another serious concern is that pinned stones in cemeteries that experience frequent vandalism may experience collateral damage if re-broken; i.e., the drilled holes can be blown out, requiring extensive and visible infill repairs. This option however is the repair method chosen when the break is located near to the ground, and additional support is required to prevent future snapping. Often, repairs close to the ground (within two or three inches) fail prematurely when epoxy alone is used.

Special Concerns:

Only professional conservators and skilled craftsmen should attempt this type of repair. However, this method has been learned and applied by trained and skilled individuals. Blind pinning should only be undertaken on a stone in sound condition. Pinning is usually done only on stones that are three inches thick or greater. Only an experienced conservator should attempt pinning on two inch thick stones.

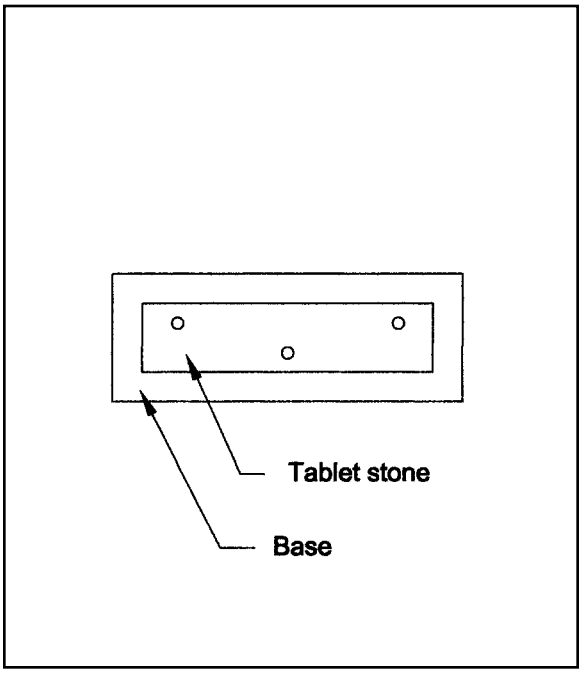


Repair of snapped marker using nylon or stainless steel dowels epoxied into their holes. Dabs of epoxy can be used to secure the two pieces together while grout can be injected after the epoxy has cured to reinforce the repair. Knife grade epoxy can be used for the dabs of adhesive and for securing the dowels to the holes.

2 3 Blind Pinning – Instructions

1. Clean surfaces to be joined and allow to dry. Dry-fit the mating pieces. If the stone is out of the ground or has fallen from its base, arrange the pieces on the workbench and determine the location for the holes to be drilled. If not, the difficult job of aligning and drilling the holes will have to be done on-site.

2. Drill two or three holes for pinning using carbide-tipped bits. If the third hole is used, offset its location from a straight line to minimize the chance of splitting along the grain of the stone (see sketch). Impact drills should not be used because of possible damage to the stone.



When using dowels in the repair it is best to offset the middle dowel to avoid the chance of weakening the marker along a bedding plane.

a) Accurate placement and alignment of holes is difficult and critical. Drill the holes parallel to the axis of the monument and accurately aligned with opposing holes.

b) Hole size – The diameter of the holes should be about 1/4 inch larger than the pins, which allows for some misalignment of the holes. Hole depth in *each* stone should be about two inches; with total depth of four inches– about one inch greater than the length of the pin.

c) Save the small amounts of stone dust for possible use in tinting mortar. Clean out the holes with compressed air.

3. Pin size – For a three inch-thick stone, use 3/8 or 1/2 inch diameter pins– three inches long. (For a two inch-thick stone, smaller 1/4 inch pins are used to minimize the chance of splitting). Use non-corrosive pins such as nylon with threads or grooves for good adhesion. Non-stainless steel rods are not desirable, because of rusting or staining, and higher thermal expansion vs. stone.

4. Dry fit with pins installed. Apply epoxy adhesive to the holes in the stone. Coat the nylon pins with epoxy and place in holes.

5. Apply two or three quarter-sized dabs of epoxy (about one inch diameter) on opposite sides of the mating surfaces per the Type 2 Repair (above). *Note:* Type 1 repair methodology (above) – with epoxy spread over the mating surfaces – may also be used when the mating surfaces have a close fit.

6. Set detached pieces (with pins) in place. Gently rock to assure full mating of the epoxy. Clamp the stone to align the two stone pieces, using bar clamps with wood spacers. Avoid contacting the stone with metal clamps or tools.

7. Excess epoxy can be removed with acetone, or trimmed by carefully scraping before fully cured. After the epoxy has cured, remove the clamps. Fill any voids left in the stone using grout or color-matched mortar (see above).

8. Cementitious mortar can be used to fill any remaining gaps.

2 III 3 Missing Stone Fragments

Missing fragments of damaged headstones or bases can be replaced using mortar infill to approximate the original shape of the monument. Proprietary (premixed) mortars are available, or mortars can be made on-site from a specific formula.

The color of the mortar can often be closely matched to the stone; when dry, infill-patch can achieve a similar texture to the stone. When attempting to match the color of infill mortar to the stone color, it is desirable to err with a color lighter than the stone. Infill can be darkened with judicious use of stain after curing, but a darker color cannot be lightened. Stone dust (crushed stone made from stone fragments available at monument makers) can be used to achieve the desired color. Stone dust is also available from conservator supply companies and masonry supply stores.

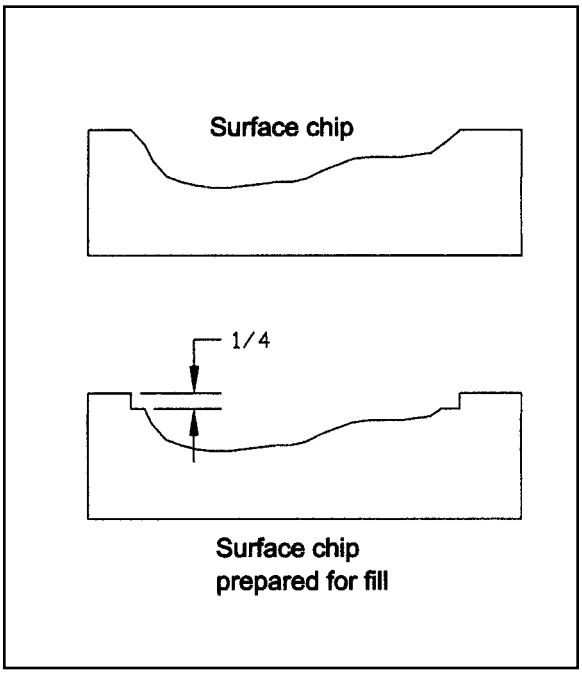
Extreme care should be exercised with infill repairs. Avoid spilling infill material on areas where not required, because discoloration or staining of the stone can occur. Use only proprietary mortars, or specific mortar formulas suitable for the application. Only experienced teams should carry out infill repairs. Before attempting infill on historic markers, conservators should practice on discarded stone fragments or on landscape stones. The following process is time consuming and requires meticulous workmanship.

Preparing the Stone for Infill

The following instructions were taken from the Cathedral Stone Products, Inc. web site.

2 Do not apply mortar on a section of stone that has an obtuse (blunt) angle on the fracture at the surface. The resulting feathered edge of mortar would be weak and vulnerable to chipping and premature failure.

To correct this problem, grind a square-cut 1/4 inch notch or recess into the beveled/fractured surface. (See sketch) This provides a more square (vs. sharp-edged) mortar section, which also increases the bonding surface area and decreases the possibility of future joint failure. Minimize any grinding on the *finished* surface of the monument, which would affect its appearance.



Chips and breaks need to be prepared as shown in this illustration. A feathered edge repair is prone to failure.

Similarly, when preparing to use infill to fill any voids in the stone, grind a square-cut notch to minimize the sharp thin edges of the mortar. This process is recommended by Cathedral Stone Products Inc., as well as other professional conservators.

Applying Mortar

- Prior to applying mortar, wet the stone with water to avoid absorption of moisture from the mortar by the stone and a resulting weak mortar joint. Avoid leaving puddles of water, which will weaken the cured mortar.
- Apply the mortar by building up thin layers to minimize voids. Work the mortar into any cracks or crevices along the break line. The surface of the mortar should be one-quarter to one-half inch higher than the desired final surface when the initial application of mortar is completed.
- When the surface of the mortar fill has begun to *partially* set, gradually tool (scrape) the mortar to the finished size and shape. Use a stainless steel "screed" or other flat tool that will not stain the mortar. Contouring the infill surface to the desired shape (prior to complete curing) is similar to the work of a sculptor or mason. As the mortar hardens, continue tooling until the remaining high (proud) surfaces are flush with the original surface, or to the desired contour. Practice on discarded stone fragments or on landscape stones.
- Carved designs, tooling marks or textures, and even partial word inscriptions can be added using sculpting tools when the infill mix is still workable. Photographs or other records can be helpful in determining any wording or other original features that may be missing. Texture or surface finish close to that of the original stone may be achieved by using a variety of brushes or tools. A smooth finish will usually dry to a lighter color than a slightly textured or stippled finish.

Keep Infill Moist During Curing – Infill repair areas should be kept moist and covered for at least twenty-four hours, especially if a large amount of fill has been used. Use damp towels to keep the area moist for one day, and / or keep the area covered with plastic sheets. Shrink wrap available at office supply stores can be used to wrap the repair after it has cured to the extent where the application of the wrap will not alter the desired form. Dampen the surface several times for several days using a spray bottle of water if shrink wrap is not used.

Note: Always check the manufacturer's directions for brand-specific detailed instructions for proprietary grout mixes; i.e., preparation, mixing, application, curing and other specific information. For example, Cathedral Stone Products, Inc.'s website contains comprehensive instructions for proprietary Jahn M70 mortar.

Clean-Up

Remove uncured mortar from the periphery of the repair area before it is dried. Use clean water and a closed cell sponge. Repeat several times to prevent a halo-effect (staining of adjacent masonry).

Repairing a Stone Monument Base Using Infill

Infill mortar mix is often used to repair the area of the base (slot) where the tablet is inserted. First reattach any stone fragments using epoxy. Where fragments are missing, the remaining voids will require application of infill. Because of the high stress in the slot where the stone is set, nylon or stainless steel pins (set in holes in the stone, protruding into the infill) may be needed for reinforcement (see Blind Pinning section for instructions on drilling holes).

A male form or plug is crafted to form the slot in the infill for the tablet (see concrete base fabrication section). Remove the plug after the mortar has been allowed to partially cure. Premature removal will result in the uncured infill sagging into the slot. Trowel the mortar for the final contour. (Tooling practice is described in Applying Mortar section.)

Selecting Mortars and Grout

Mortars are used in a variety of applications in the cemetery. Because of the many different applications, including the various stone materials, no one mortar will work for all re-pointing tasks. Because of the interaction between the stone and the mortar, the type of stone and application will dictate the selection of a mortar mix.

It is important to use mineral-based mortars (containing white Portland cement and lime) when repairing damaged historic markers. Premixed products containing latex or acrylic additives commonly found at home improvement centers are *not compatible* with stones in historic cemeteries. Because these "modern" products are so commonly used, it is often difficult to find a mason with experience using traditional lime-based mortars. The International Masonry Institute and Michigan Historic Trades Network are good resources for masons that have experience working with lime based mortars. (The addresses are in the source appendix.)

Material properties of stone and characteristics of mortar mixes are discussed on many internet sites, several of which are identified in the appendix.

Mixing mortar from scratch components, using a formula, is not difficult, and may be less expensive than proprietary mixes. It also offers the user the greatest latitude for custom-matching aggregate size, and to some extent, strength and color characteristics.

However, premixed (proprietary) mortars offer tested performance and uniform characteristics, with little variation from batch to batch. Although slightly higher in cost than mixing mortar from recipes, proprietary mortars offer volunteer workers an easy-to-use alternative with proven results.

Ingredients of Mortar

Mortar is made up of four basic components: water, sand, lime, and white (not gray) Portland cement. The strength of mortar can vary significantly depending on the proportions. Increasing the percentage of Portland cement yields higher strength mortar. More lime results in a softer, more plastic mix with improved workability.

Sand – A primary ingredient in mortar, sand gives the mortar its color and texture. Washed sand crystals that have worn, rounded surfaces (vs. sharp crystals) should be used for work on historic stone. Washed sand improves the workability of the mortar mix, and will result in a finished appearance similar to the historic mixes.

Binders – Portland cement and lime are the two commonly used binders. A high lime mortar is a soft mortar that can resist failure due to temperature changes, and is water-soluble and able to reseal hairline cracks. High concentrations of (white) Portland cement give higher hardness, but shrink more upon setting, resist migration of water, and have greater thermal expansion and contraction. These properties are undesirable on historic stone. It is important to use a suitable mixture for the type of stone and application.

As a point of reference, American Society of Testing Materials (ASTM) Type K mix is a low-strength (75 psi compressive strength) mortar, consisting of one part cement, three parts lime and ten parts sand.

Other Mortar Specifications – ASTM C 270, Specification for Mortar for Unit Masonry defines four types of mortar; with different compressive strength, air content, and water-retention abilities (cured products):

- Type S (avg. compressive strength of 2,500 psi.)
- Type M (avg. compression strength of 1,800 psi.)
- Type N (avg. compression strength of 750 psi.)
- Type O (avg. compression strength of 350 psi.)
- Type K (average compressive strength of 75 psi.) — Not included in ASTM C270 since 1984 but still used in historic applications.

Special Properties of Mortars

Mortars are selected on the basis of their ability to react to the environment similar to the substrate (stone). Avoid mortars with acrylic or latex binders because they inhibit the ability of the stone to breathe and allow salts to become trapped, causing damage to the stone.

Proprietary mortars such as the Jahn products, offered by Cathedral Stone Products, Inc. in Maryland, are single-component, cementitious, mineral-based mortars designed for specific stone types and applications. **Some proprietary mortars require special training and certification to purchase and install.** Firms that make mortars for historic repairs can be found in the appendix and on the internet.

> *Note: Mortar repairs are to be viewed as sacrificial; i.e., if the repaired stone breaks again, it is intended that the repaired joint will fail, not the material of the stone.*

Non-proprietary Mortar Mixes

The white Portland and lime mixes described below have both the plasticity necessary to insure a good bond, and lower hardness compatible with historic stones. Because these mortars closely approximate the strength, permeability and appearance of older mortars and stone, they are appropriate for their respective application (from *John Walters Recipes for Mortar Mixes* – www.rootsweb.com/-inpcrp/mortarmixes.html).

Slot Mix – A mixture used in the *slot* of a monument base when replacing a tablet stone. Mix the following dry components (by volume):

- One part white Portland cement
- Four parts hydrated lime
- Eight parts clean sand
- Water (Very little water is needed for this mix. It should be very stiff and dry looking.)

Stack Mix – A mixture used to set (stack) a marker onto a *flat stone* base. Mix the following dry components (by volume):

- One part White Portland cement
- Three parts hydrated lime
- Water (Very little water is needed for this mix. It should be very stiff and dry looking.)

Both the headstone and the stone base must be clean and sound. Remove all dried mortar from the base or stone. Masking the base stone to the size of the footprint of the headstone will avoid excessive clean up. Dampen the bottom of the headstone and the base with a spray bottle of water, to insure that the stone does not absorb water from the mortar.

- After pre-wetting the base and stone, apply a one-half-to one-inch-thick layer of mortar onto the top of the stone base, covering the outline of the stone. Set the headstone on the base. Use wooden braces for support if required.
- Completely fill the gap around the stone and the base. Create a one-eighth inch mortar fillet at the intersection of the stone and the base to help shed water. After the mortar has dried, usually in a day or two, the braces can be removed.

Infill Mortar Mix – Another basic mix, often used in historic cemeteries to replace missing fragments of stone. The intent is that the dried mortar closely matches the stone being repaired both in color and texture. The choice of aggregate (e.g., sand or stone dust), will dictate the color and texture to some extent. Stone dust, available at sand and gravel / landscape suppliers, or made by crushing stone fragments, can provide a variety of colors and textures. Experiment with different aggregates and check for color-match when dry. If a close match cannot be achieved, choose a lighter colored aggregate, and color the mix with grout dye to match. Mix the following dry components (by volume):

- Two parts White Portland cement
- Four parts Hydrated Lime
- Seven parts stone dust (aggregate) from the parent stone if available
- Water (Very little water is needed for this mix. It should be very stiff and dry looking.)

An infill repair is done not only to improve appearance but to reinforce a repair. Here the repair is done so that the finished edges are of the same worn appearance as the rest of the marker. From a few feet away the repair is indiscernible.

MASONRY REPAIRS AND REPOINTING

Structures in the cemetery such as brick walls, public vaults and other masonry features, while considered *permanent*, are subject to deterioration of the mortar joint. Properly mixed and installed mortars shed water from the masonry, and act as a cushion or buffer against thermal expansion and contraction. Damage caused by stress is intended to occur in the mortar joint, rather than in the stone or brick. Repointing deteriorated joints is an important factor in assessing the maintenance needs of historic masonry structures. A well-prepared and installed joint should last at least twenty to thirty years, although much longer life can be expected under optimum conditions.

Repointing

2 Repointing is the process of cleaning loose mortar from a deteriorated joint, and replacing it with fresh mortar. Using a hammer and chisels, or a grinder, clean out all old mortar from the joint to a depth two to three times the width of the joint. Using an incorrect mortar mix can result in premature failure of the joint and damage to the structure itself. Improper preparation and cleaning of the joint, or a joint with insufficient new mortar, can also lead to premature failure.

The philosophy that “stronger is better” is a common mistake in selecting mortar. Mortar used on historic stone must be flexible to allow for movement while maintaining the bond to the substrate.

A mason experienced with historic lime mortars may be a better choice for larger repointing projects. However, if the following factors are considered in selecting a mortar mix, experienced non-professionals can achieve satisfactory results.

- Compression strength of the mortar – the objective is to match the strength of the existing mortar.
- Type of stone with which the mortar will interface.
- Permeability – a more rather than less permeable mix is usually desirable.
- Type of mortar existing in the joints. (with which the replacement mortar will be interacting)

Pack the mortar in the joints carefully to avoid voids and gaps. Avoid getting mortar on the surface of the bricks. Every attempt should be made to finish the joint with the finished profile and texture the same as the original joint.

Using laboratory tested pre-mixed proprietary mortars may be cost-effective compared with failure of the mortar and masonry.

> *Caution: Pre-mixed mortars available at home centers are too hard and strong for use in historic applications. If possible, have the existing mortar tested to determine its properties.*

GSA Recommended Mortars

Listed below are four mixes recommended for the respective applications in the U.S. General Services Administration Historic Preservation Technical Procedure 04100-03.

Dry components are combined before water is added. *Very little water is needed for these mixes; they should be very stiff and dry looking.*

Historic Masonry Set in Lime Mortar

- One part White Portland Cement
- Three parts lime
- Eight to twelve parts of sand to match existing texture (exact mix will vary due to grain size and will also affect final compression strength)
- Water to give a dry but workable consistency

Historic Masonry Set in Standard Mortar (approximates the ASTM Type "O." See Appendix)

- One part White Portland Cement
- Two parts lime or lime Putty
- Six to nine parts sand or stone dust to match existing texture
- Water to give a dry but workable consistency

Mortar for Use on Limestone (approximates ASTM Type "N." See Appendix)

- One part White Portland Cement
- One part lime
- Four to six parts aggregate
- Water to give a dry but workable consistency

Mortar for Use on Granite (approximates ASTM Type "S". For granite that shows deterioration, or walls indicating movement, use ASTM Type "N" as indicated for limestone.)

- Two parts White Portland Cement
- One part lime
- Seven to nine parts aggregate
- Water to give a dry but workable consistency

EXISTING REPAIRS, SPECIAL BRACES, AND GIRDLING

Older cemeteries display ingenious ways of retaining and supporting markers and marker fragments. While many of these historic repair methods are contrary to traditional conservation standards, many of these repairs have been at least effective. With their unique characteristics, they have become a part of the historic fabric of the cemetery. How the repair is treated (and conserved) becomes an important consideration.

"Do No Harm" Criteria

In some situations, the condition of the stones, or the resources available, may warrant using similar unconventional methods. *The rules identified earlier of "do no harm" and "do that which is reversible" still apply*. It is generally accepted that a stone fragment is 'better off' standing up than lying in the ground; therefore some of the unconventional methods can make good temporary fixes. Braces to hold up the stone, or girdling / banding to hold the stone together, may be effective. While this type of unique repair is sometimes acceptable, it should not be implemented on a large scale; thus widespread use is not advisable. Repair materials selected should cause no damage to the stone, including rust stains from iron or steel used in a repair.

In rare circumstances, unorthodox repairs such as this application serve its purpose. The metal braces used are stainless steel and do not restrict movement of the stone while it still holds the marker upright.

OLD REPAIR METHODS

Iron & Steel

Some older stones have been reinforced or repaired with steel angle or channel, or fastened with bolts or threaded rods through the stone. Steel banding or other bracing devices may also have been installed. Careful evaluation of these old repairs is critical. If the stone does not appear to be in imminent danger of failing, it may be best to leave it alone. If it is necessary or desirable to rework old repairs, a professional conservator should be consulted for corrections. Using steel or iron to shore up a monument is not an acceptable practice.

Drilling through a marker to affix braces is never an acceptable alternative.

Girdling

Professional conservators have used stainless steel channel to girdle stones that have broken, or are judged susceptible to failure. Although not desirable, girdling may be appropriate to prevent theft, accidental breakage and damage, or accelerated deterioration.

- A channel section, slightly wider than the thickness of the stone, is fabricated from high-grade 304 stainless steel, and installed along both edges of a tablet stone. The width of the front flange (3/4") is usually shorter than the rear, to minimize obscuring the inscription on the face. The channels are set in concrete footers to support the stone. Use metal tools with caution around gravestones.
- To stabilize and isolate the stone from the channel, lead wedges, lead rope, or lead wool (available from plumbing suppliers) is packed into the gap between the stone and the channel. Using lead requires attention to safety measures, including all applicable OSHA regulations.
- Use materials that will not adversely react with the stones; e.g., 304-grade stainless steel (vs. mild steel). Do not use silicone sealant or caulks. Because repairs should be reversible, drilling holes through the tablet to secure the channel is not desirable.

Professional conservators have in unique situations, girdled a marker with stainless steel channel. Here the repair is not easily seen and has not compromised the stone.

Tablet Stones Laid In Concrete

23 In older cemeteries, broken stones are sometimes laid flat (imbedded) into a bed of concrete, with the intent of protecting them. Although this reflects an earlier attempt to make a repair, we now understand that the integrity of a stone in this position is compromised because it is now more susceptible to damage from maintenance equipment or from pedestrians. It may also be stained from being covered with leaves and turf, and has little chance of ever completely drying out.

However, removal of the stone from the concrete bed would result in even greater risks to the stone, and should not be attempted. Modifications to prior repairs such as this should be attempted only if the prior repair poses a safety hazard to maintenance crews and the general public.

Instead, carefully clean debris from the stone and the concrete, and identify the edges of the cement pad. Divert vehicle and pedestrian traffic by installing black anodized aluminum landscape edging into the ground around the concrete pad, secured with spikes, and extending approximately two inches above grade. Holes can be drilled into the edging for drainage if required.

Setting broken markers in cement is not an acceptable practice, but removing stones that have been set in concrete is too risky.

Temporary Removal

It may be necessary to temporarily remove a marker of special/unique character from the cemetery for safekeeping until appropriate repair methods can be implemented. Before it is removed, record the location of the stone for future replacement. If the marker will be removed from the grave for some time, a temporary marker should be placed in the location of the original.

Burying a Stone Temporarily

When facilities for temporarily storing broken stones are not available, or when a cemetery is subject to vandalism, another option (and a last resort) is to bury a piece (or pieces) of stone for safekeeping. Bury the stone where it was located. The location must be identified, and the record placed with the cemetery survey to assist in future replacement.

- Dig a hole in front of the existing stone – about eight inches deeper than the thickness of the stone, and large enough so that the stone pieces can lay flat. Tamp the bottom surface and place pea-stone on the bottom to facilitate drainage.
- Place the stone in the hole on top of the pea-stone and cover the marker with geo-textile fabric (available at landscape supply houses). Cover the stone and fill the rest of the hole with clean fill sand. Gently tamp – avoid cracking the marker.

SPECIAL REPAIRS – TABLE AND BOX TOMBS

Because of their special conservation needs, trained and experienced professionals should service these monuments.

Table Tomb

Table tombs may be warped due to improperly installed or deteriorated supports. The conservator may be able to reverse warping by removing the tablet, placing it upside down, and supporting it in a pool of water; with the intent of allowing it to gradually return it to its original (flat) shape. Add additional structural elements to support the top of the tomb, or repair and reinforce existing supports. The details for this work are outside the scope of this book. A professional conservator should be contacted for an assessment.

Box Tomb

Box tomb repairs should also be left to trained conservators. Often the corners, which may be pinned with metal fittings, are damaged as the pins rust and expand. As a result, the top of the tomb may have collapsed, damaging both the top and the sides.

Special Repair Criteria for Box and Table Tombs:

- It is important to retain as much of the original structure of tombs as possible. Even when the inscriptions are illegible, these tombs constitute an important element of the historic fabric of the cemetery.
- Lime mortars should be used as described above. Concrete is used only where footings need replacement.
- When replacing metal components, use high quality 304 stainless steel.
- All surrounding vegetation should be removed (or relocated if the plant is an heirloom variety) to avoid damage due to future plant growth.

A table tomb in very good condition.

A box tomb in fairly good condition. Note the stone delaminating on the right corner of the monument.

Chapter 4

MANAGEMENT AND MAINTENANCE OF THE CEMETERY

After documentation of the cemetery is complete and conservation has begun, it is time to turn attention to management and maintenance requirements. Each cemetery plan will depend upon its community's unique requirements, resources, and manpower. The creation of a local cemetery ordinance is a useful tool in planning for the long term management of the cemetery.

DEVELOPING A CEMETERY ORDINANCE

An ordinance helps to regulate the maintenance, funding, preservation, ownership, access and other issues related to both historic and modern cemeteries. Writing and adopting a local ordinance is time consuming, but worth the effort.

Identify a commission, a township board member, or a city council member that will support the ordinance. It will probably be necessary to educate local officials and commissioners regarding the conditions of historic cemeteries and the need for more specific regulations designed to preserve the integrity of these cultural resources. Once local officials recognize the need for regulation of historic cemeteries, work with these officials and the

city, village or township attorney to draft an ordinance. Provide a sample ordinance containing a list of issues to be addressed. The following are suggestions:

- Protection of the cemetery from vandalism and theft
- Preservation and conservation of the historic cemetery and its artifacts and planting
- Protection of the cemetery from the unlawful removal of human remains
- Lawful relocation of human remains from an actively used or abandoned cemetery
- Protection of the cemetery from the removal of funerary objects
- Development of land that contains a cemetery
- Legal accessibility of cemeteries located on private property
- Specific locations and needs of military veterans' grave markers
- Guidelines related to removal, replacement, and repair of objects associated with a cemetery
- Illegal possession and sale of gravestones and funerary accessories
- Sale of a cemetery
- Use of the Secretary of the Interior's *Standards and Guidelines.*
- Authority to acquire or manage the cemetery
- Authority to raise / appropriate money for conservation and maintenance
- Supervisory body that will oversee management and finances (e.g. city council)
- Rules and regulations of the cemetery
- Process to appeal rules and regulations
- Sale of lots including prices of lots and services
- Lot records required
- Registration of interments
- Funerals and interments (rules)
- Preparation and filing of plats
- Perpetual care fund (investment of assets, use of assets, administration of assets and transferring the fund)
- Memorials (monuments and markers: definitions, use, restrictions)
- Neglected or abandoned cemeteries

The above list, compiled from the Chicora Foundation, "Grave Concerns, A Preservation Manual for Historic Cemeteries in Arkansas," and The Association for Gravestone Studies (AGS), should serve as a guide in the creation of an ordinance, a strongly recommended addition to a list of long-term goals. A sample ordinance prepared by Theodore Chase for The Association for Gravestone Studies is available on the association's website.

PLANNING FOR MAINTENANCE

A burial ground that is properly maintained is pleasant to visit and discourages vandalism. After the cemetery landscape is documented and the initial cleanup has been done, it is time to plan for ongoing maintenance. Maintenance choices may depend upon the budget of the cemetery organization or community. Every cemetery is different and has individual needs.

Short and Long Term Maintenance Goals

Both short and long term maintenance goals should be developed. Much like the prioritization of tasks concerning the repair of monuments, the priorities of landscape preservation and conservation begin with safety and emergency stabilization issues. For example, the removal of tree limbs that are broken or diseased and are potentially hazardous should be addressed immediately. It is important that trained, insured, professionals address safety issues as early as is reasonable.

A maintenance schedule should be part of a cemetery's master plan or preservation maintenance plan. Goals will depend upon the cemetery's needs. Some examples are:

Short term goals:

- Safety and emergency stabilization
- Weeding
- Pruning
- Mowing
- Collection of trash

Long-term goals:

- Strategies for lawn care
- Resolving erosion problems
- The preservation or replacement of trees and smaller plants

SOIL AND TURF MANAGEMENT

Testing and Amending the Soil

2 Before investing any time or resources on the reestablishment of plants or introducing new plants into the cemetery, test the soil. Nutrients cannot be transmitted to the plants effectively if the soil itself inhibits the plants from absorbing the nutrients added during the fertilization process. A soil that has a pH level between the 6.0 to 7.0 range is recommended.

Test kits are available at local nurseries and landscape companies. More extensive testing can be done through a local agriculture extension service. It may suggest what micronutrients are required to bring the soil pH up to a desirable level. This modification can usually be accomplished over a period of about two years, depending on how much adjustment is required. Soil testing should be done in the cemetery every three or four years. Keep a record of any amendments to the soil in order to chart progress.

Any soil amendments made in the cemetery will eventually be wicked up into the markers. With this as a consideration, it is important that those applying amendments have the chemical formulations of each product checked by a knowledgeable professional prior to application to prevent potential damage to headstones and other features. Formulas that are acidic should be avoided, as they will damage marble and limestone. Formulas that contain salts should be avoided as well. Ideally, use a slow release, nonacid, organic fertilizer. Be very careful when applying any chemical to the cemetery. Always blow off or sweep off excess chemicals that may have come into contact with the markers.

Lime

The application of lime will help adjust the acidity level in the soil. It will also change the structure of the soil so that it will decompose organic matter more quickly, hasten bacterial action in the soil and enhance the translocation process of micronutrients from the soil to the plants. The application of lime is done only when soil test results indicate a need to adjust a soil's acid level. Lime should not be applied to soils in conjunction with animal manures and nitrogenous fertilizers, as the combination causes a rapid release of ammonia, which can burn plants.

Fertilizer

If the decision is made to fertilize, it is important to supply the turf with no more than one pound of nitrogen per one thousand square feet. It is always best to supply fertilizer in light, frequent applications as opposed to infrequent heavy applications. Generally speaking applications can be done on or around the first week of June, September, and November. It is important to follow manufacturer instructions when applying fertilizer and irrigation should be adjusted to complement the introduction of fertilizer. A slow release formula with a 3:1:1 ratio is suggested for most applications.

Although a strong stand of turf usually requires fertilizer to maintain its vitality, over-application to enhance growth will require more maintenance to keep the look of the cemetery acceptable to modern standards. Furthermore, because fertilizers contain acids and salts, the routine application of fertilizers is discouraged. A balance must be struck between the health and vitality of the turf and the important considerations of stone conservation.

Herbicides and Insecticides

The routine use of herbicides is discouraged. Their use should be restricted to eradicate noxious plants such as poison oak and poison ivy. Insecticides should be used only in the case of serious infestations. Indiscriminate application of any chemical in a historic cemetery should be avoided. The probability of damage to the markers is much greater than the benefit gleaned from the chemical application.

Soil Compaction

Soil compaction is the single largest killer of turf. Failure to maintain the subsurface portion of the turf disrupts the balance of the turf and leads to a steady decline. Often the decline is blamed on insect infestation, disease, improper watering, or poor fertilization practices. Aeration helps eliminate thatch. The unmanaged build-up of thatch will make the lawn suffer. Ideally the cemetery should be aerated twice a year; though once a year is often adequate. This can be done with three-quarter inch hollow core tines that penetrate no more than three inches deep. It is best done during periods of active turf growth such as spring, early summer, or fall and when the soil is moist to insure full tine penetration. Another benefit of aerating is that it can be done in conjunction with the over seeding of the turf or other renovation projects. A negative aspect of aeration is that openings in the turf provide opportunity for the invasion of weeds. It is important, then, to time the aeration to avoid optimum germination periods.

Aeration should not be done in areas where snapped markers are still lying in the ground. A core aeration machine can cause severe damage to stones left covered by only a couple inches of dirt. Aerate only after a complete survey and probing has been done to assure that no stones are damaged.

Over-Seeding

The regular introduction of grass seed to the cemetery is an important part of the maintenance plan for a strong stand of turf. For best results, over-seeding can be accomplished immediately after core aeration has been completed. A mix of seed should be used for optimum coverage. The mix should reflect the conditions of the area, such as shade or sun, and the soil conditions as well.

The following are recommended as good basic mixes. Specific needs should be identified and mixes made to fit those needs. A reputable landscape supply company, such as Lesco, can offer a variety of premixed-bagged seed. For additional information, a local agriculture extension agent can be of assistance, as could the greens keeper at the local golf course. Generally the seed is applied at a rate of 120 pounds per acre. Here are suggestions from the grounds manager at Fort Custer National Cemetery, Battle Creek, Michigan:

Full sun mix:

- Twenty percent Gnome Kentucky Bluegrass
- Twenty percent Micro Tall Fescue
- Twenty-five percent Titan II Tall Fescue
- Twenty-five percent Waldina Hard Fescue
- Ten percent Affinity E Perennial Ryegrass

Shady mix:

- Forty percent Red Fescue
- Thirty percent Perennial Rye
- Twenty percent Chewings Fescue
- Ten percent Kentucky Bluegrass

In general the type of seed mix chosen should include drought resistant, slow growing, low maintenance cultivars.

Watering

Watering of the lawns should be done where reasonable to maintain the normal growth and color of the stand of turf. If no water is available, be certain that applications of chemicals or seeds are done so that forecasted rain will have the desired effect. Most historic cemeteries do not have irrigation systems available, so the frequency of watering may be limited to natural rainfall. The cost of installing an irrigation system is often prohibitive. In addition it could be very damaging to the graves and markers, and is not historically accurate. If feasible, a water supply could be installed near the fence line or immediately outside of the fence line to accommodate maintenance needs. Locate the water tap near a roadway and use quick couplers that can be installed below grade. **Level 3**: An irrigation specialist can assist in the installation of these types of hook-ups.

Mowing

2 The lawns of historic burial grounds were not maintained using the same techniques and standards as the lawns in today's residential communities. In fact, cows and sheep were often the means by which the grass was "mowed." The turf was often longer than we are accustomed to seeing today, and to some extent, a return to the nineteenth-century standard may well be one of the best ways to preserve a historic burial ground. In some communities, however, the look that was accepted years ago would not be tolerated today. Using the older method can actually make maintenance harder because the removal of the longer thicker grass blades near to the bases of the stones is more difficult than keeping a shorter blade manicured.

How often the grass is mowed will depend on those involved in the project, the type of cultivar present, its general health, the weather and the availability of resources. Often, municipally owned graveyards are maintained by private contractors that simply cut the grass on a specified schedule. Without the proper instruction, supervision, and follow through, lawn maintenance will continue to be the most damaging activity to stones in the graveyard. Instruct those working in the historic cemetery that they will be working in a fragile environment with special requirements and care must be taken near monuments and historic plantings.

Without proper instruction and follow through, lawn maintenance damage like this will continue.

Generally speaking, no more than one third of the grass blade should be removed at any one cutting. Frequency of cutting is, to a great extent, dependent upon weather and fertilization conditions. For the most part, the following mowing schedule can be used to keep the cemetery looking manicured:

- From the beginning of the season to mid June, every five days
- From mid June to mid or late August, every ten days
- From late August to the end of the cutting season, every five days

There are points that can be discussed with those responsible for the maintenance of the cemetery lawn that will lessen the chance of damage to gravestones and historic plant material from mowing. Specific topographical and other unique features will warrant additional discussion with the lawn maintenance crew. At the very least be clear regarding the following points:

- The maintenance crew must be trained in the specific needs of the cemetery prior to actually cutting, with **an understanding that a historic cemetery is handled differently than a residential or commercial property.**
- **No riding mowers should be used in an historic cemetery.** They are too large for the closely spaced markers and in some circumstances too heavy and can leave ruts in the soil. Only walk-behind mowers are to be used in the cemetery.
- Grass should be cut to a height of 3" unless other unique considerations are discussed and agreed upon prior to cutting.
- All clumps of grass left by the mowers should be raked up and discarded off premises.
- All mowers used in the cemetery should **have and use discharge guards** to protect the gravestones and workers from thrown debris. It should be made clear to workers that **mowing equipment should never make contact with headstones.**
- Where possible, alternate the direction of mowing every other cut.
- **All mowers should be equipped with rubber bumpers on the decks**, any axle assembly, or other feature on the mower that might come in contact with a stone while mowing. This can be fabricated out of old inner tubes or tires and can be riveted on. Loose cell foam can also be used as a bumper.
- While mowing around stones the discharge chute should project away from the marker.
- Grass should be cut by the mower up to, and no closer than, 12 inches from every marker. The rest of the turf will be trimmed with a line trimmer (weed whips) using a line that measures no more than .09" in diameter. There should be a clear understanding as to the delicacy of the markers in the cemetery.
- Any damage should be reported immediately to the cemetery administrator.
- There should be a process for delaying maintenance in the event of a funeral or burial.

Drainage

Determining drainage problems will require a professional engineer or landscape architect. Near many cemeteries the surrounding area has been developed causing a change in the original topography of the cemetery. As a result, the newly created run off from the developed areas can cause drainage issues that must be addressed. Not only will standing water cause damage to the stones and their surroundings, but the standing water poses a health issue as well. Often the installation of a French drain (a trench filled with gravel and topped with sand) or some drainage tile will rectify the problem. Install the drainage outside

the fence line of the cemetery so that the run-off is not allowed to enter the cemetery. Prior to any excavation be certain that graves are not going to be affected by these actions. In the event that soil has to be imported and used to level or build up an area, be certain that no markers are being covered and lost due to the addition of soil. In many instances a municipal planner or engineer will be available to suggest methods or improvements that will assist in the drainage issues. Advice from an archeologist experienced with cemetery work may be appropriate as well.

Depressions

Depressions in the soil are usually the result of earth in the burial shaft settling, or the result of removal of trees or bushes. For slight depressions it is generally recommended that they be left alone. If the depression poses a safety or drainage hazard and the decision is made to fill it, it is important to decide whether or not it is that of an unmarked grave. Any alteration of the landscape should be documented and recorded with the cemetery survey data.

Trees

2 Planting the proper tree in the right location and then correctly maintaining it will determine whether it will be an asset or a liability. It is recommended that trees be fertilized annually with a slow release fertilizer with a ratio of 3:1:1. An inspection of the trees should be made periodically to make sure the root systems are not interfering with gravestones and that broken limbs are not safety hazards. An effort should be made to replace a tree that has sustained damage or is no longer viable. The ideal plan is to replace a tree with the exact species. Replacement of a memorial tree, for example, could be done using its genetic stock. However, some old species are susceptible to insects and disease. Also, it may not be economically feasible to replace certain species or not advisable because it maybe harmful to gravestones.

3 In most cases it is recommended that an arborist (see Yellow Pages of the phone book) or tree service that is knowledgeable about historic landscapes be consulted when replacement is considered. If a tree needs to be removed due to disease, damage, or conflict with gravestones, it is best to cut it as close to the ground as possible, then leave the stump to decay without assistance of chemicals. After the stump has decayed topsoil can be added and the area reseeded.

"The Massachusetts Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries" is an excellent resource for landscape maintenance. It would be appropriate for use in Michigan because Massachusetts plant hardiness zones are the same as

in southern Michigan, zones 5 and 6. The following are some of Massachusetts's recommendations for tree maintenance:

> A specific planting plan should be developed prior to planting additional trees. The selection of tree species is an important consideration in terms of appropriateness, maintenance requirements and protection of historic artifacts. Botanic diversity is a particularly important consideration for sites that have roots in the rural cemetery movement. Monocultures are generally not recommended because of experience with devastating diseases like Dutch Elm Disease, White Pine Blister Rust and Chestnut Blight. Acid rain has been monitored for many years and it is suspected to be affecting Sugar Maples, causing Maple decline. Traditionally, Maples have been considered to be long lived trees where narrow tree pits, road salt and drought have not been a problem. ("Massachusetts Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries," p. 28-29)

Replacement trees should be limited to areas that do not interfere with grave markers, paths, drives, fences, walls, and buildings. Tree placement should take into consideration the specific characteristics in relation to the type of stone. For example, the roots of acidic trees, such as pine and oak, can be detrimental to marble, limestone, and sandstone, which contain calcium carbonate. Stones of the silica family, such as granite, are more resistant to acid. If a tree needs to be replaced in the cemetery, the Michigan Department of Natural Resources offers the following hardiness and size guidelines for tree selection:

RECOMMENDED MICHIGAN NATIVE TREES			
Common	**Genius Species**	**Hardiness Zone**	**Size Class**
Fir, Balsam	Abies Balsamea	3-5	large>40’
Maple, Red	Acer rubrum	3-9	large>40’
Maple, Sugar	Acer saccharum	3-7	large>40’
Birch, River	Betula nigra	4-9	large>40’
Birch, White	Betula papyrifera	2-4	large>40’
Hackberry	Celtis occidentalis	4-9	large>40’
Beech, American	Fagus grandifolia	4-9	large>40’
Cedar, Eastern Red	Juniperus virginiana	2-9	large>40’
Tuliptree	Liriodendron tulipfera	4-9	large>40’
Blackgum	Nyssa sylvatica	5-9	large>40’
Spruce, White	Picea glauca	2-6	large>40’
Pine, Red	Pinus resinosa	2-5	large>40’
Pine, White	Pinus strobes	3-8	large>40’
Cherry, Black	Prunus serotina	4-9	large>40’
Oak, Swamp White	Quercus biocolor	4-7	large>40’
Oak, Bur	Quercus macrocarpa	3-8	large>40’
Oak, Pin	Quercus paustris	5-8	large>40’
Oak, Red	Quercus rubra	5-8	large>40’
Oak, Shumard	Quercus shumardii	5-9	large>40’
Arborvitae	Thuja occidentalis	2-8	large>40
Basswood	Tilia Americana	4-7	large>40’
Ohio Buckeye	Aesculus glabra	4-6	medium 30-40’
Ironwood	Ostrya virginiana	3-9	medium 30-40’
Spruce, Black	Picea mariana	2-5	medium 30-40’
Maple, Striped	Acer pensylvanicum	3-7	small>30’
Serviceberry, Downy	Amelancier arborea	3-8	small>30’
Hornbeam, American	Carpinus caroliniana	4-8	small>30’
Redbud, Eastern	Cercis Canadensis	4-9	small>30’
Dogwood, Flowering	Cornus florida	5-6	small>30’
Dogwood, Grey	Cornus racemosa	4-8	small>30’
Hawthorn	Cratageus spp.	5-8	small>30’
Common Chokecherry	Prunus virginiana	3-8	small>30’
Nannyberry Viburnum	Viburnum lentago	2-8	small>30’

TREES NOT RECOMMENDED FOR PLANTING		
Common	**Genus Species**	**Comments**
Maple, Boxelder	Acer negundo	Weak wood, poor branch structure, prone to insect pests, invasive.
Maple, Norway	Acer plantanoides	Overplanted, invasive, susceptible to storm damage.
Maple, Norway Cultivars	Acer plantanoides cultivars	Overplanted, invasive, susceptible to storm damage.
Maple, Silver	Acer saccharinum	Weak wood, poor branch structure, very susceptible to storm damage, invasive roots.
Tree of Heaven	Ailanthus altissima	Weak wood, sucker growth
Birch, Paper	Betula papyifera	Prone to major insect pests, very susceptible to storm damage.
Birch, European White	Betula pendula	Prone to major insect pests, very susceptible to storm damage.
Chestnut, American	Castanea dentate	Prone to major disease and insect pests
Russian Olive	Elaeagnus angustifolia	Prone to major disease and insect pests, very invasive
Ash species	Fraxinus spp.	Prone to major disease and insect pests, especially Emerald Ash Borer
Ginkgo	Gingko biloba	Fruit from female trees have very unpleasant odor.
Honeylocust	Gleditsia tricanthos	Messy fruit, thorns may be harmful, thornless varieties are available.
Mulberry, White	Morus alba	Messy fruit, susceptible to storm damage, invasive roots.
Spruce, Colorado	Picea pungens	Out of range in Michigan, prone to disease
Spruce, Colorado Blue	Picea pungens var. glauca	Out of range in Michigan, prone to disease
Poplar, White	Populus, alba	Susceptible to storm damage, excessive sucker growth, invasive roots.
Poplar, Cottonwood	Populus deltoids	Susceptible to storm damage, excessive sucker growth, invasive roots.
Cherry, Black	Prunus serotina	Messy fruit, prone to disease and insect pests, very susceptible to storm damage.
Locust, Black	Robinia pseudoacacia	Prone to major disease and insect pests, sucker growth.
Willow, Weeping	Salix alba	Weak wood, poor branch structure, very susceptible to storm damage, invasive roots.

TREES NOT RECOMMENDED FOR PLANTING – CONTINUED		
Common	**Genus Species**	**Comments**
Willow Black	Salix, nigra	Weak wood, poor branch structure, very susceptible to storm damage, invasive roots.
Mountain ash, American	Sorbus americana	Major disease and insect pests
Mountain ash, European	Sorbus aucuparia	Major disease and insect pests
Elm, American	Ulmus americana	Prone to major disease and insect pests, especially Dutch Elm Disease, invasive roots.
Elm, Siberian	Ulmus pumila	Prone to major disease and insect pests, very susceptible to storm damage.
Elm, Slippery	Ulmus rubra	Prone to major disease and insect pests, especially Dutch Elm Disease.
Elm, Rock	Ulmus thomasii	Prone to major disease and insect pests.

Pruning

Trees and shrubs should be pruned on a regular basis to protect people and cemetery artifacts from falling branches. Too much shade may retain moisture in the ground, which affects grave markers, particularly marble and slate. Look for canopies that are too broad and susceptible to wind damage or trees that are shallow rooted and easily toppled. Consider thinning the crown of a tree as opposed to removing the tree. A five-year cycle of pruning is advised for normal maintenance. After inclement or windy weather the burial ground should be inspected for tree damage that would necessitate pruning or staking.

Plants

A supply of plants taken from the cemetery can be maintained by taking cuttings or propagating plants from seed. A small flower/plant bed might be started outside the cemetery for this purpose, assuring that a supply of the cemetery's historic species will be on hand. This could be done by volunteers, such as a local garden club or master gardener.

Some plants self-seed or put up new shoots through runners and create new plants known as volunteer growth. All volunteer growth should be removed at least once a year and a thorough inspection of trees and shrubs throughout the cemetery should be done on a yearly basis, to avoid damage caused by unchecked growth.

BUILDINGS, OTHER STRUCTURES, AND FEATURES

Many historic cemeteries contain structures such as mausoleums, chapels, and crypts. While it is beyond the scope of this work to address conservation of these buildings, they are an important part of the historic context of a cemetery and a plan for their conservation should be developed. Likewise, stone walls and concrete curbing fall into the same category. Professionals experienced with conservation of historical and architectural features should be consulted before any work is begun. Without reasonable, appropriate conservation measures these buildings and structures are endangered and begin to pose security and safety concerns. Failure to maintain historic structures not only detracts from the appearance of the cemetery but compromises the cemetery's historic fabric.

Pathways and Roads

2 The circulation pattern of roads and pathways in the cemetery should remain as originally laid out. Maintenance will depend upon how heavily the site is used. Repairing paved areas, cleaning paths and drives, removing hazards that might cause tripping, monitoring and repairing erosion problems, and snow removal are on-going activities. Brick and gravel paths and roadways require regular maintenance.

Vehicle entrances should be at least twelve to fourteen feet wide. Pedestrian entrances should be at least forty-eight inches wide. Paths should be a minimum of sixty inches wide and wheelchair access should be offered. (Strangstad, p. 20) The Americans with Disabilities Act is intended to eliminate, as much as reasonable, unnecessary barriers encountered by those with disabilities. There are exceptions to parts of this act, specific to historic settings. "Complying with barrier-free access requirements, in such a way that character-defining features, materials and finishes are preserved, for example, widening existing stone walks by adding new stone adjacent to it to achieve the desired width." (The Secretary of the Interior's *Rehabilitation Guidelines for the Treatment of Cultural Landscapes*, p. 86).

Signage

Another ancillary element that the cemetery plan needs to address is signage. In addition to historic signage there is often a need for contemporary signs. If they are well designed and appropriately placed they will enhance the visitor's experience by providing information, interpreting history, assisting in way finding, and indicating regulations that pertain to the site. Signage, though necessary, can be an unobtrusive component of the cemetery.

For a small cemetery, it is recommended that signs be limited to the cemetery entrance. Signs that provide pertinent information should be posted prominently, but should not

detract from the historic feeling of the cemetery. If it is necessary to include way finding or interpretive signage within the cemetery the number of signs should be limited and their color and design should blend with the surroundings. Avoid creating the impression of false history by using materials or styles that appear to be historic when they are not. Likewise, materials such as polished granite or marble should not be used as they can be confused with monuments.

Metal is the most durable and appropriate material for signage. Cast alloys of aluminum or brass will provide a visually pleasing sign that will be quite durable and require little maintenance. Although they are durable, avoid both sheet metal and plastic for aesthetic reasons. Though historically correct, wood tends not to weather well and may have to be replaced frequently. The mounting standards or posts can be as important as the sign, and care should be taken when choosing them. While it is appropriate to post signs on fencing it is not recommended that they be attached to trees. Before placing any signs, consider how they will affect the view shed and historic resources of the cemetery.

Signs that identify or name the cemetery are the ones most likely to be historic in nature. Often a historic cemetery will have an ornate cast iron sign as part of the entry gate. Where this type of sign exists it should receive the same care and maintenance as other decorative metalwork. Historic signs often provide little additional information beyond the cemetery's name, creating a need for other informational signage. Further information might include the cemetery's founding date and any other names for the cemetery, both historic and current, thus clearing up any confusion for those doing research pertaining to the site.

Informational Signs

To retain clarity of either instructions or information several different signs may be necessary. Informative signs should be posted near the entrance of the cemetery where the visitor can readily find them and should provide pertinent information such as the name and contact information of the agency maintaining the cemetery and its hours of operation.

Informational signs may also include:

- historical information
- founder's name
- the names of important persons interred
- state, national, or local register designation, if applicable
- information to contact cemetery authority for further rules and restrictions on funerals, headstones, plantings, etc.

If a restoration is in progress signage can keep the public informed. Such a sign might include the name of the group or agency in charge of the restoration project as well as information about where interested persons can contribute both financial and volunteer help. It should also identify a contact person with phone number, e-mail address, or a web site created for the project. A sign of this type can also serve to recognize those that have contributed to the restoration.

A cemetery may have a state historical marker that gives a brief summary of the history of the cemetery. Michigan law now requires that work on sites with state markers must meet the Secretary of the Interior's *Standards for Rehabilitation*, or the marker can be removed.

Signs that provide information on important burials, local settlement histories, or ethnic groups buried in the cemetery or that indicate unusual plantings or monuments can be erected by the local government, historical society or cemetery associations. If a group plans on this type of sign the history should be well researched and accurate. Where many markers are missing or stones are deteriorated, plaques may be used to list all known burials.

Signs such as these inform the public of the important historical information relative to the cemetery. They also demonstrate a community's commitment to the historic cemetery.

Regulatory Signs

Sometimes a cemetery association or a local government will post a regulatory sign near the entrance to inform the public of any special regulations pertaining to the cemetery. The public needs to be aware of restrictions on pets, jogging, or alcohol, or limitations on grave decorations or plantings. Where restrictions need to be posted, they should be done in as unobtrusive a manner as possible. It is off-putting to be met by a large list of "don'ts" upon entering the cemetery gates. Be advised that no rule can be created that is contrary to local, state, or federal regulation, so research the regulations as they relate to the site. Regulatory signs also advise the public of any restrictions, prohibitions, or permits required by the cemetery authority.

Regulatory signs may include:

- hours of operation
- rules / prohibitions, e.g., no dogs or alcoholic beverages
- caution regarding fragility of older stones
- caution not to move or tread on fallen stones
- policy regarding cleaning or "rubbing" of headstones, including any permits or permission required

Before any signs are ordered or installed, check with local authorities to see if any ordinances apply to the site, or if permits are required. While signage is essential for information and way finding, the over-use of signs detracts from a cemetery's appearance and raises the question of historical accuracy.

Lighting

Small cemeteries founded in the nineteenth century did not historically have lighting as an original feature. Modern security issues, however, sometimes dictate a need for some lighting. Maintaining historic context and balancing today's needs become an issue that should be addressed with thought and care.

Most experts recommend keeping lighting to a minimum and preferably confining it to outside the cemetery boundaries. It is suggested, however, that the lighting outside of the cemetery (possibly pre-existing) be enhanced if security needs exist. Improved street lighting or the addition of lighting on buildings surrounding the perimeter of the cemetery may offer the most reasonable approach.

Installing new lighting within the parameters of an historic cemetery is a challenge. The electrical lines needed for installation most likely do not exist within the boundaries of the cemetery. Overhead lines will most often be aesthetically unpleasing and burying lines is almost impossible given the nature of these sites. The heavy equipment necessary to install underground lines, the chances of disturbing a burial site, and the potential for damage to cemetery elements makes it a daunting and very expensive task.

While historic cemeteries do not often have lighting as a feature, any fixtures or poles that appear to be historic should remain. They require the same research and documentation as other features of the cemetery. All documentation should be included with cemetery survey data. Cemetery plans and goals should include proper conservation and maintenance of these historic features.

Other Features

Often, in order to optimize the use of a historic cemetery, a need arises for certain elements that never existed historically. Trash receptacles and, to a lesser extent, seating are modern additions that are of some necessity in the cemetery. Choice of materials and respectful placement is the key in incorporating these elements. Be aware that creating a false sense of history is unacceptable according to the Secretary of Interior's *Standards and Guidelines for Historic Preservation and Rehabilitation*. Using materials or designs that lead visitors to believe that these new elements were historically present is destructive to the historic integrity of a property. Trash receptacles should be placed discretely and unobtrusively in areas where they are required. Seating should be simple in design and, if needed, preferably placed outside the entrance to the cemetery. Avoid additional plantings that can be historically inaccurate and increase the cost of maintenance. Repair and conservation of pre-existing ancillary features is always suggested as they contribute to the historic character of the cemetery.

Chapter 5

THE CEMETERY AS
A CULTURAL ARTIFACT

MULTI-PURPOSE USE OF CEMETERIES

While a great number of historic cemeteries remain active with new sections platted and burials continuing, not all of the state's cemeteries are still in use. Though inactive, they are still important to a community as a cultural resource. A group formed to act as curator of a historic cemetery should be aware that in order for conservation efforts to continue, it is important to devise ways to attract, and interest, a diverse group of people. Finding new uses for historic cemeteries helps assure that they will be well maintained and cared for. In addition, multi-purpose use of a cemetery prevents the appearance of abandonment that can invite trouble. With good planning historic cemeteries can serve the living while commemorating the dead. A multi-dimensional approach to planning will help generate the interest and funds necessary to insure that goals set for the future conservation of the cemetery are achieved.

As an educational tool the cemetery offers the community many opportunities that, if utilized to their full potential, can benefit a cemetery preservation project in many ways. Charging a small fee for historic tours can be a means of providing much needed revenue for a project. History tours for both adults and children will build respect for and interest in local history as well as foster community pride and respect for the site. For school children

a field trip to the cemetery can spark an interest in preservation, art, folklore, or other studies. Genealogists often find information not easily accessible elsewhere. The cemetery can also serve as a laboratory and workshop for preservation projects. Imagination and planning will enable a community to fully utilize this important resource.

Tours are one way of utilizing the cemetery for educational purposes. Tecumseh, a small community in Lenawee County, Michigan, counts over three hundred Civil War soldiers buried in their Brookside Cemetery. Every spring, as part of Tecumseh's "Promenade the Past" annual festival, Robert Elliot, local historian and guide, conducts an extremely popular Civil War tour. He has done extensive historical research utilizing public records at the Archives of Michigan, personal letters, and other memorabilia to construct the lives of several soldiers. Local actors dressed in period costume stand alongside selected tombstones and recount the soldiers' histories in first-person narrative. Mr. Elliot who has been conducting these tours for ten years, says the emotional impact of the tour is impressive. Since he began the tours for school children, scouts, and others there have been no incidents of graffiti or vandalism in the cemetery. It is an excellent way to not only recount local history but to also tie that history to the broader story of our nation's past. The respect generated for the individuals involved in making the area's history leads to respect for the cemetery.

Brownie Troop 2487 visited Lodi Township Cemetery to learn about the cemetery and its history and to pick up trash and branches.

Involving local adult education, schools, scout troops, 4-H, and other organizations will insure a wide use of the cemetery. Two ideas include: a group meeting to read and record epitaphs, (even young children can participate in such an activity), or a group discussion on cultural attitudes towards death based on epitaphs and inscriptions.

Teachers may find the cemetery a useful learning tool. It can become an outdoor laboratory for the study of geology, chemistry, biology, and botany. Writing, literature, and history instructors can find ample opportunities for their students to use the cemetery to generate stories and research histories. For art instructors there is a wealth of sculpture and headstone carvings available for drawing, photographing, and studying. Geared either toward elementary or secondary education the following list of questions could be used in association with a visit to the cemetery. When combined with a prior history, culture, or art lesson, they will help focus the visit, generate an interest in, and provide a follow-up activity to the visit.

- Are any markers inscribed in foreign languages? What does this relate about the area's history?
- Are there indications of wars, epidemics or other catastrophic incidents recounted in the epitaphs or inscriptions? (Examples: Mentions of battles or military campaigns, a large number of people who died during the 1918-19 flu epidemic, or several family members that died on the same day.)
- What is the oldest grave marked?
- What is the newest grave marked?
- Are there any famous people buried in the cemetery? (local, state, or nationally important)
- What decorative carvings and epitaphs are noticed? Are there similar carvings on other monuments? Do similar motifs have similar dates? What does this indicate?
- What is the condition of the monument? The grounds? The fences etc.?
- What is the most common material used for monuments? (stone type)
- Was there anything surprising about the cemetery or the visit?
- Pick one monument and write a paragraph, or essay about the epitaph, carving/artwork, or the condition of the monument.

Workshops modeled on the Association for Gravestone Studies and the National Preservation Institute sponsored workshops can be planned. At times monument dealers, cemetery conservation groups, or preservation organizations like the Michigan Historic Preservation Network, conduct training sessions on proper gravestone cleaning and repair techniques.

The Michigan Historic Preservation Network, as well as other groups have given workshops on cemetery conservation. Here a representative from Cathedral Stone talks at a workshop given by the Michigan Historic Preservation Network in Rochester Hills, Michigan.

Grave Concerns, a Preservation Manual for Historic Cemeteries in Arkansas, offers a list of "Over 100 Things to do in a Cemetery." We reproduce it here in part, with a few original ideas, providing a list of activities that seem most suited to the Michigan climate, and the relatively small size of the cemeteries we have been discussing:

- Conduct walking tours highlighting selected burials in the cemetery such as Civil War soldiers or local founding fathers.
- Have students complete a living history of the cemetery. Write short biographies of those buried in the cemetery and have them available for walking tours and other activities.
- Conduct tours with interpreters dressed in period costumes recounting personal histories.
- Conduct a scavenger hunt where groups look for information that can be gleaned from inscriptions or artwork on monuments.
- Publish genealogical information.
- Plan demonstrations or conduct workshops on proper cleaning and/or maintenance techniques.
- Conduct a photographic workshop.
- Hold Memorial and Veterans Day services.

- Sponsor a "Make a Difference Day" clean up.
- Establish an adopt-a-plot or adopt-a-stone program to help with maintenance.
- Seek out students and others who must complete community service projects and use them for routine maintenance.
- List the cemetery on local and national historic registers.
- Create a slide show or power point program for use in presentations.
- Establish a web site about the cemetery.
- Design a pamphlet or self guided walking tour of the cemetery.
- Conduct a monument inscription workshop with instructions on reading the stones and understanding their meaning.
- Offer seminars on antique plant care and propagation.
- Establish a "Friends of the Cemetery" group or cemetery foundation.
- Other ideas can be found at www.angelfire.com.

As a landscape, the cemetery is a type of botanical garden where a variety of trees and other plant species may be found. In the spring wildflowers can be seen and in the fall a visitor may enjoy the rich palette of colored leaves. Some horticulture-related activities for individuals or organizations are:

- Have a shrub and tree tour.
- Lead a tour of garden enthusiasts to view and discuss historic plantings.
- If trees are mapped or easily identifiable, compare which species are native to Michigan and which are not.
- Have a spring flower tour. What flowers are symbolic?
- Identify Michigan wild flowers.
- Create a calendar or coloring book using historic cemetery plants.
- Hold a botanical watercolor or drawing class.
- Hold a workshop on care of the cemetery landscape.
- Offer limited sales of clippings and seeds from historic plants.
- Have an amateur or professional juried photograph contest and sale featuring photos taken in the cemetery. A percentage of the sales could go to the cemetery organization.
- Offer a workshop on propagating and growing antique plants.

These lists are only a beginning. Finding a way to integrate a historic cemetery into community life is limited only by the creativity of the planners.

GRAVESTONE RUBBING – DON'T

Cemeteries, with their irreplaceable headstones, are an important part of the cultural heritage of every area. Cemeteries contribute to our local and regional heritage, and should be respected and treated as carefully as any other historic artifact.

Gravestone rubbing is the process of reproducing the inscriptions on headstones onto paper by rubbing a wax stick, chalk or other art-markers over paper on the surface of the stone. While this may seem to be a harmless activity, many stones in historic cemeteries are permanently damaged by this practice. Persons unfamiliar with the requirements of historic cemeteries may assume that the various headstone materials are impervious to harm, however, stone can be easily damaged and must be treated with care. The following information regarding the damage to gravestones has been adapted from the Association for Gravestone Studies leaflet, "*Gravestone Rubbings for Beginners*" by Jessie Lie Farber.

Damage Caused by Rubbing

Gravestone rubbings are not recommended and are no longer considered an acceptable practice because of the harm and damage that can occur. Listed below are common concerns and damage caused by rubbing.

- Paper used to make the rubbing can tear, causing the rubbing material (often wax) to be transferred to the monument. Removing wax from the stone is extremely difficult without significant degradation of the stone.
- Rubbing over the edges of the letters and carving on a stone causes minute damage to those edges. Over time, this damage opens pores in the stone, allowing additional moisture into the stone, which can accelerate deterioration from the inside out.
- The harsh elements of nature to which stones are exposed not only deteriorate inscriptions and decorations, but also render the total facade susceptible to damage. Previous repairs, or existing deterioration due to spalling or sugaring of the surface, also make applying friction and pressure to the face of the stone an unsound practice.
- Some rubbing papers can leave a waxy residue on the stone, which hinders the stone's natural ability to breathe, and may discolor the stone and ruin the natural patina. The waxy residue can also interact with acid rain, accelerating deterioration of the crust of the stone. Using newspaper as a rubbing media, which is often advocated, can also adversely affect the stone because it contains acids and the ink may stain the stone.
- Adhesive tapes of any kind should not be used. They may leave a residue on a headstone that will adversely affect the stone.

- **The use of shaving cream to highlight inscriptions is not an acceptable practice and should not be allowed.** Shaving cream contains steric acid, a waxy solid, which causes the surface of stones to deteriorate more quickly. The damage to the surface of the stone is similar to that of acid rain, but is more severe. Marble and limestone are particularly vulnerable. Because it soaks into the stone quickly, it is very difficult to completely rinse off the surface. Residues include organic compounds, which attract harmful microscopic organisms such as moss and algae, further deteriorating the stone.

Photography as an Alternative to Rubbing

With the currently available photographic capabilities, rubbings are an unnecessary risk for fragile historic headstones. High-resolution photography of stones is a safe and effective alternative to rubbing. Photography can document and reproduce the same information. A digital camera can achieve remarkable results without chemicals or stress to the stones.

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Appendix A

FORMS

MICHIGAN GENERAL CEMETERY SURVEY FORM

Use continuation sheets where needed

Survey Date _____

Current Cemetery Name _____

Historic Cemetery Name _____

Address _____

Village/City _____ Township _____

County _____

Owner _____

Owner's address _____

Owner's phone number _____

Type of ownership

☐ private-profit ☐ private-nonprofit ☐ private-unspecified ☐ city ☐ township ☐ county
☐ state ☐ federal ☐ Native American ☐ other _____

Accessibility to public

☐ unrestricted ☐ restricted (private property) ☐ by car ☐ by foot

Description

Type of cemetery (check all that apply)
☐ community ☐ family ☐ military ☐ municipal ☐ national ☐ religious
☐ other, explain _____

Design/style/layout

☐ early burying ground/small historic cemetery ☐ Rural Cemetery
☐ Lawn Park ☐ Memorial Park

Condition

☐ currently in use ☐ abandoned ☐ maintained, but not in use

Overall evaluation of condition of grounds

☐ excellent ☐ good ☐ fair ☐ poor

Specific problems

☐ overgrown vines ☐ overgrown grass ☐ overgrown shrubs ☐ unpruned trees
☐ fences, walls in poor repair

Context

☐ urban ☐ rural ☐ residential ☐ commercial ☐ industrial

Approximate size of burial ground: _____x_____ft., _____acres

Boundaries

☐ fence (material) _____
☐ wall (material) _____
☐ gate (inscription) _____
☐ hedge (type) _____
☐ other _____
☐ none _____
Condition of boundaries _____

Topography
☐ flat ☐ rolling

Natural features: _____

Ethnic group(s) interred
☐ Caucasian ☐ Asian ☐ Native American ☐ African American ☐ Hispanic
☐ other, explain _____

Further information _____

Grave groupings (check all that apply)
☐ family ☐ fraternal order ☐ military ☐ religious ☐ ethnic heritage
☐ other, explain _____

Plot enclosures (check all that apply; indicate number of each if appropriate)
☐ curbing, material: _____
☐ hedge, type: _____
☐ wall, material: _____
☐ other (explain) _____

Gravestones
Approximate number of markers (fifty years or over in age) _____
Approximate number of markers (less than fifty years old) _____
Approximate number of burials _____
Evidence of unmarked burials _____

Number of markers with burial dates from ☐ 19th century ☐ 20th century

Age: earliest date_____ most recent date_____

Materials (check all that apply and place a **P** on the most prevalent material):
☐ fieldstone ☐ sandstone ☐ limestone ☐ marble ☐ granite ☐ wood
☐ concrete/cement ☐ iron (cast/wrought) ☐ white bronze/zinc
☐ other, explain _____

Note if other methods of marking graves exist, such as footstones, mounding, broken pottery, flowers, other types of decoration beyond markers:_____

_____

Orientation of markers (N-none/very few, S-some, M-most, A- all)

East/West_____ North/South_____

other (explain) _____

_____

Decorative carvings on the markers. Provide a list of common images:_____

_____

_____

Are there unusual markers? Describe_____

_____

_____

Names of stone carvers (specify name, town, company if available) _____

_____

Condition of markers (give approximate number)

☐ inscriptions illegible ☐ inscriptions legible ☐ no inscription ☐ sunken/tilted stones
☐ fragments/pieces on the ground ☐ broken but standing
☐ damaged surfaces/chipped/cracked

If other conditions or damage observed, please specify problem _____

_____

List any restoration efforts (examples: metal supports, enclosed in concrete etc.)

_____

_____

_____

List any hazards imperiling the cemetery's existence _____

_____

_____

List other structures (mausoleums, chapels, columbaria, etc.) and describe condition _____

_____

_____

_____

List artifacts (statues, urns, etc.) and describe condition _____

_____

_____

_____

Circulation system of paths and roadways_____

_____

_____

General overview of vegetation (List specific plants on **Plant Documentation Form**)_____

_____

_____

_____

Historical background

Year established (use circa if actual date not documented) _____

Ownership history _____

Has the cemetery been listed in an existing published/unpublished cemetery survey?

☐ No ☐ Yes: date, and where stored? _____

_____

List important individuals of local, state, or national importance buried here: _____

_____

_____

List any historical incidents: _____

_____

_____

List distinctive monuments, architectural features or sculptures and explain their historical significance: _____

_____

_____

_____

_____

Is this cemetery the successor to another located elsewhere? If so, explain_____

_____

Are the markers in their original locations or rearranged? _____

_____

_____

Additional information:_____

_____

_____

_____

Significance of this site to local, state, or national history:_____

_____

_____

_____

_____

Surveyor name _____

Surveyor address _____

_____

MICHIGAN INDIVIDUAL MONUMENT RECORD FORM

Cemetery or Graveyard Name _____

Municipal unit/county _____

Address or location _____

1. Monument number (from grid) _____
2. Monument type/shape
   ☐ head ☐ foot ☐ tomb ☐ family ☐ obelisk ☐ pedestal with urn ☐ block
   ☐ beveled ☐ flush ☐ marker/small tablet ☐ ledger stones ☐ box ☐ table
   ☐ rustic ☐ sculptural memorial ☐ columnar ☐ cross

   Tablet: ☐ rectangular ☐ semicircular ☐ with shoulders ☐ in base

   ☐ other (describe) _____

   _____
3. Material
   ☐ marble ☐ granite ☐ sandstone ☐ limestone ☐ fieldstone ☐ concrete
   ☐ white bronze (zinc) ☐ bronze ☐ iron ☐ other _____
4. Carver or manufacturer _____
5. Number of carved surfaces _____
6. Carving technique used: ☐ incised ☐ relief ☐ three dimensional
7. Decorative carving motif(s)
   ☐ urn and willow ☐ urn ☐ willow ☐ heart ☐ hands clasped ☐ hand pointing upward
   ☐ hand reaching down ☐ angel ☐ botanical ☐ lamb ☐ open book

   ☐ other (describe) _____
8. Number of people commemorated _____
9. Condition of marker
   ☐ sound ☐ chipped ☐ cracked ☐ crumbled ☐ eroded ☐ broken ☐ tilted ☐ sunken
   ☐ repaired ☐ in situ ☐ displaced ☐ encased in concrete ☐ overgrown (vines, weeds, brush)
10. Previous repairs
   ☐ cracks ☐ pins ☐ mortar ☐ adhesive ☐ girdling
11. Condition of inscription
   ☐ excellent ☐ clear but worn ☐ mostly decipherable ☐ mostly undecipherable
12. Dimensions

   main body: height _____ width _____ thickness _____

   base: height _____ width _____ thickness _____
13. Marker orientation
   ☐ N ☐ S ☐ E ☐ W ☐ NE ☐ SE ☐ NW ☐ SW
14. Master record number _____
15. Date of record _____
16. Name of recorder or group _____

17. Inscriptions

face _____

_____

_____

right _____

_____

_____

_____

rear _____

_____

_____

_____

left _____

_____

_____

_____

18. Photographs (one or more per side)

Additional information _____

_____

_____

_____

_____

Recent cleaning/repairs (date) _____

_____

_____

_____

_____

PLANT DOCUMENTATION FORM

Cemetery name _____ Reference number _____

Municipal unit/county _____

_____

_____

Date_____

Genus _____

Species_____

Common name _____

_____

Size _____

Color _____

PHOTO

Condition_____

_____

Location: master map grid number_____

Historical significance/context of plant _____

_____

_____

Does plant appear to be part of a planned landscape?

_____

Evaluation of integrity and significance_____

_____

_____

Recorder's name _____

SAMPLE PERMISSION FORM TO GAIN PERMISSION TO VISIT, CLEAN AND/OR RESTORE A CEMETERY
(adapted from www.savinggraves.org)

The undersigned land owner hereby grants permission to the volunteer named below and other persons acting in a volunteer supervision of said volunteer to attempt to restore _____ Cemetery in the county of_____, in the state of _____.

There is an understanding that such efforts may include (but are not limited to) removing all noxious and detrimental vegetation (including trimming trees, lawn mowing and weeding), removing accumulated debris from buried gravestones and markers, the excavation and repair of markers, and the straightening and resetting of gravestones.

Name and title (please print) _____

Signature of cemetery owner (or designee of municipality) _____

Date signed_____

Township of_____

Location of cemetery_____

Address of owner _____

Phone of cemetery owner_____

Special instructions to volunteer_____

_____

The volunteer named below agrees to perform the tasks set out herein to the best of his/her ability, promising to act in good faith to clean the above-named cemetery, to be responsible for the acts of any persons working under the volunteer's supervision, to be responsible for any damage sustained at the site and to exercise due and diligent care to prevent injury to the site or any persons.

The volunteer named below certifies that neither he/she nor any person operating under the volunteer's supervision shall remove from the above location any stone, monument, marker, artifact, ornamentation, enclosure, or other object without the express permission of the cemetery owner.

The volunteer named below further agrees that his/her efforts shall comply with the generally accepted cemetery conservation and preservation techniques as promulgated by organizations such as Saving Graves, The Association of Gravestone Studies, the National Park Service, and the National Trust for Historic Places.

Date signed_____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer_____

Telephone number of Volunteer_____

E-mail address of Volunteer_____

Appendix B

RESOURCES

ORGANIZATIONS

The following list includes local, state, and national resources related to cemetery preservation/ conservation.

American Institute for Conservation of Historic and Artistic Works
1717 K Street, Suite 200, Washington, D.C. 20006. (202)452-9545

Association for Preservation Technology
P.O. Box 8178, Fredericksburg, VA 22404. (800)338-1926

Center of Historical Cemeteries Preservation
P.O. Box 6296, Tallahassee, FL 32314. (850)877-9014
Promotes the study, documentation and preservation of historical burial sites in the southeastern United States and the Caribbean.

Chicora Foundation, Inc.
P.O. Box 8664. Columbia, SC 29202. (803)787-6910. www.chicora.org

Getty Conservation Institute
1200 Getty Center Drive, Suite 700, Los Angles, CA 90049. (310)440-7325

Michigan State Historic Preservation Office
Michigan Historical Center, 702 West Kalamazoo Street, Lansing, Michigan 48909-8240. (517)373-1630. www.michigan.gov/shpo.

National Endowment for the Humanities
1100 Pennsylvania Avenue NW, Washington, D.C. 20506. (202)682-5400.www.arts.endow.gov/
It offers assistance to nonprofit organizations seeking information on federal services.

National Institute for Conservation Heritage Preservation
1624 K Street NW, Suite 700, Washington, D.C. 20006. (888)388-6789.
www.heritagepreservation.org

National Park Service
1202 Eye St., NW, 2255 Washington, D.C. 20005. (202)513-7270. www.cr.nps.gov

National Register of Historic Places
National Park Service, U.S. Department of the Interior, P.O. Box 37127, Washington D.C. 20006. (202)343-9559.

National Trust for Historic Preservation
1785 Massachusetts Ave., N.W., Washington D.C. 20036. (202)673-4296

National Trust for Historic Preservation. Midwest office.
53 West Jackson Blvd., Suite 350, Chicago, IL 60604. (312)939-5547

National Preservation Institute
P.O. Box 1702, Alexandria, VA 22313-1702. (703)765-0100

Research Grant Guides
P.O. Box 1214, Loxahatchee, FL 33470. (561)795-6129. www.researchgrant.com

Save Outdoor Sculpture
1730 K Street NW Suite 566, Washington, D.C., 20006. (800)422-4612

The Association for Gravestone Studies
278 Main Street, Suite 207, Greenfield, MA 01301. (413)772-0836. www.gravestonestudies.org

The Council on Foundations
1828 L Street, NW, Washington, D.C. 20036. (202)466-6512. www.cof.org/home.htm

The Foundation Center
79 Fifth Avenue, New York, NY 10003. (212)691-1828. www.fdncenter.org/

GENERAL PUBLICATIONS

Wilson, Rex. *Archaeology and Preservation.* Information Sheet no. 28. Washington D.C.: National Trust for Historic Preservation, 1980.

Association for Gravestone Studies. 278 Main Street, Suite 207, Greenfield, MA 01301. www.gravestonestudies.org Several excellent leaflets on cemetery preservation are available for a small charge.

Curl, James S. *A Celebration of Death: An Introduction to Some of the Buildings, Monuments, and Settings of Funerary Architecture in the Western European Tradition.* New York: Charles Scribners' Sons,1980.

Gillon, Edmund V. Jr. *Victorian Cemetery Art.* New York: Dover Publications, Inc., 1972.

Hacker, Debi. *Iconography of Death, Common Symbolism of the Late 18th Through Early 20th Century Tombstones in the Southeastern United States.* Columbia, SC: The Chicora Foundation, Inc., 2001. (This publication and others are available from the Chicora Foundation web site.)

The Genealogical Institute, Publications Division. *How to Search a Cemetery.* Salt Lake City, Utah, 1974.

Jackson, Kenneth T., and Camilo Jos, Vergara. *Silent Cities: The Evolution of the American Cemetery.* New York: Princeton Architectural Press, 1989.

Meyer, Richard E., ed. *Cemeteries and Gravemarkers: Voices of American Culture.* Ann Arbor, Michigan: UMI Research Press, 1989.

Nichols, Elaine, ed. *The Last Miles of the Way: African-American Homegoing Traditions 1890-Present.* Columbia, South Carolina: South Carolina State Museum, 1989.

Ridlen, Susanne S. *Tree-Stump Tombstones: A Field Guide to Rustic Funerary Art in Indiana.* Kokomo, IN: Old Richardsonville Publications, Kokomo-Howard County Public Library, 1999.

Roberts, Warren E. *Investigating the Treestump Tombstone in Indiana, American Culture and Folklife: A Prologue and a Dialogue.* Simon J. Bronner, ed. Ann Arbor, Michigan: UMI Research Press,1985.

Strangstad, Lynette. *A Graveyard Preservation Primer.* California: Altamira Press, 1995.

Strangstad, Lynette. *Preservation of Historic Burial Grounds.* (2003) Washington, D.C. National Trust for Historic Preservation.

Zelinsky, Wilbur. *Unearthly Delights: Cemetery Names and the Map of the Changing American Afterworld, Geographies of the Mind.* David Lowenthal and Martyn J. Bowden, eds. New York: Oxford University Press, 1976.

HISTORIC PLANT IDENTIFICATION

Breck, Joseph. *The Flower Garden or Breck's Book of Flowers.* Boston: John P. Jewett and Co.1851. Reprint, Guilford, Connecticut: Opus Publications, 1988.
Great plant lists for mid-nineteenth century.

Crockett, James Underwood. *Trees.* New York: Time-Life Books, 1972.
Colored illustrations and narrative for identification and care.

Faveretti, Rudy and Faveretti, Joy. *For Every House a Garden.* Hanover, New Hampshire: University Press of New England, 1990.
Period plant lists.

Gardner, Joann. *The Heirloom Garden.* Vermont: Story Communications, Inc., 1992.
Black and white drawings, plant descriptions, and dates.

Leighton, Ann. *American Gardens of the Nineteenth Century.* Amherst, Massachusetts: The University of Massachusetts Press, 1987.
Contains a listing of nineteenth century plants in the appendix.

Proctor, Rob. *Annuals: Yearly Classics for the Contemporary Garden.* New York: Harper Collins Publishers, 1991.
Color photographs. Helpful in identifying antique plants that reseed themselves.

Proctor, Rob. *Country Flowers.* New York: Harper Collins Publishers, 1991.
Describes both cultivated and wild antique species. Color photographs.

Bailey, Liberty Hyde. *Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada.* New York: MacMillan Company, 1976. Plant descriptions.

Whiteside, Katherine. *Antique Flowers.* New York: Running Heads Incorporated, 1998.
Color illustrations, plant descriptions, and excellent bibliography.

SOURCES FOR ANTIQUE PLANTS

Antique Heirloom Plants
333 Redemption Rock Trail, West Sterling, MA 01564. (978)422-8371
www.antiqueheirloomplants.com

Antique Rose Emporium
9300 Lueckmeyer Road, Brenham, TX 77833. (800)441-0002

Baker Creek Heirloom Seeds
2278 Baker Creek Road, Mansfield MO 65704. (417)924-8917
www.rareseeds.com

Heirloom Roses
24062 NE Riverside Drive, St. Paul, OR 97137, (503)538-1576
www.heirloomroses.com

Old House Gardens
536 Third Avenue, Ann Arbor, MI 48103
www.oldhousegardens.com
Antique bulbs and reproduction seed catalogs for sale.

Michigan State University Extension Service
Agricultural Hall, Room 108, Michigan State University, East Lansing, MI 48824-1039, (517)355-2300.

Perennial Pleasures Nursery
P.O. Box 147, East Hardwick, VT 05836. (802)472-5104
www.antiqueplants.com

Roses of Yesterday and Today
803 Brown's Valley Road, Watsonville, CA 95076. (831)728-1901

Schliefert Iris Gardens
9515 Hwy 50, Murdock, NE 68407. (402)234-4172

Seed Savers Exchange
3076 N. Winn Road, Decorah, IA. (319)382-5990

Seeds of Change
1 Sunset Way, Henderson, NV 89014. (888)762-7333

Select Seeds
180 Stickney Hill Road, Union, CT 06076. (800)684-0395

Thomas Jefferson Center for Historic Plants
Monticello, P.O. Box 316, Charlottesville, VA 22902. (800)243-1743
www.monticello.org

SUPPLIERS

Jerith Aluminum Fences

Ace Fence Company
11022 Ingeram, Livonia, Michigan 48150. 734-427-6166

Monuments

Arnet's Beckers Burrells Monuments
4495 Jackson Road, Ann Arbor, MI 48103. 734-665-3658

Epoxy

Akemi Plastics, Inc.
Eaton Rapids, MI

Akepox 22010 Epoxy

Architectural Stone
2033 Austin Road, Troy, MI 48083

D-2, Anti-microbials, Jahn Mortars and Grouts

Cathedral Stone Products
7266 Park Circle Drive, Hanover, MD 21076. 800-684-0901. www.jahnmortars.com

Vulpex Soap

Conservation Resources International
8000-H Forbes Place, Springfield, VA 22151. 800-634-6932. www.conservationresources

Rust Converter

Corrosion Control Industries
P.O. Box 4717, Johnson City, TN 37602. 877-661-7878

Tools and Supplies for Stone Working and Restoration

Granite City Tool
247 28th Ave. South, St. Cloud, MN 56387. www.granitecitytool.com

Akepox 2010 Epoxy

Granite House
2984 28th Street Southwest, Grandville, MI 49418. 616-531-0606

Lime and Portland Cement

Graymont Dolime Inc.
21880 West State Route 163, Genoa, OH 43430. 800-537-4489. http://graymont-oh.com

Mastico Epoxy

Hilgartner Natural Stone Company
101 West Cross Street, Baltimore, MD 21230. 410-752-4832. www.hilgartner.com

Historically Accurate Fence and Ironwork

King Architectural Metals
3131 Washington Blvd., Baltimore, MD 21230. 800-542-2379

SUPPLIERS

Turf Care Products

Lesco, 1077 James L. Hart Pkwy., Ypsilanti, MI 48197. 734-487-5559. www.lesco.com

Portland Cement, Lime, and Rust Converter

Liner Rolpanit Inc. North America
30 Glen Cameron Road, Suite 101, Ontario, Canada L3T 1N7. 905-707-7087.
www.linrol.com

Elite Fence Products, Inc.

Michigan Fence and Supply Company
44865 Utica Road, Utica, Michigan 48317. 810-739-5351

Epoxy and Stone Working Tools for the Cemetery

Miles Supply Company
143 Boynton Street, P.O. Box 237, Barre, VT 05641-0237. 802-476-3963

Master Halco Ornamental Iron Fencing

Monumental Iron Works
P.O. Box 365, Lahabra, California 90633. 888-643-3623. www.mafence.com

Stone Consolidants, Paint Strippers and other Chemical Agents used in Restoration Projects

Pro-So-Co, Inc.
755 Minnesota Avenue, P.O. Box 1578, Kansas City, KS 66117. 800-255-4255

Industrial Rust Cover

Rustoleum
11 Hawthorne Pkwy., Vernon Hills, IL 60061. 800-553-8444. www.rustoleum.com

Epoxy

Sika Corporation, 201 Polito Avenue, Lyndhurst, N.J. 07071. 201-933-8800

Historic Iron Work and Fences

Stewart Iron Works Company
P.O. Box 2612, 20 West 18th Street, Covington, KY 41012. 859-431-1985
http://stewartironworks.com

Akepox 2010 Epoxy

Terrazzo and Marble Supply
1290 Evergreen Road, Detroit, MI 48223. 313-273-1556

Tools for Stone Work

Trow and Holden
45 South Main Street, Barre, VT 05641. 800-451-4394. www.trowandholden.com

Source for Vulpex Soap

University Products
517 Main Street, P.O. box 101, Holyoke, MA 01041. 800-628-1912
www.universityproducts.com

WEB SITES	
Name of Organization	**Web Address**
AHGP Michigan Cemetery Transcription and Photo Project	www.usgennet.org/mi/state1
Alliance for Landscape Preservation	www.ahlp.org
American Fence- locates AFA contractors in a specific area	www.americanfenceassociation.com
American Forest Historic Tree Nursery	www.historictrees.org
American Institute for Conservation of Historic and Artistic Works	www.//aic.stanford.edu
Ancestry- genealogy	www.ancestry.com
Antique heirloom plants	www.antiqueheirloomplants.com
Arkansas Historic Preservation Program- cemetery preservation	www.arkansaspreservation.org
Association for Gravestone Studies	www.gravestonestudies.org
Association for Preservation Technology	www.apti.org
Baker Creek Heirloom Seeds	www.rareseeds.com
Ben Meadows- environmental supplies such as probes	www.benmeadows.com
Cemetery Junction Directory Cemetery records	www.daddezio.com www.geneasearch.com
Chicora Foundation- cemetery conservation/preservation	www.chicora.org
Cyndi's list- genealogy	www.cyndislist.com/mi.htm
Chamblee roses- includes heirlooms	www.chambleeroses.com
Feroze Exports- sandstone	www.ferozeexports.com/sandstonedefination.htm
Genealogy Links	www.genealogylinks.net
Genealogy today	www.genealogytoday.com
Heirloom Gardens- seeds and plants	www.heirloomnursery.com
Heirloom Plants & Seeds - links to numerous sources	www.av.qnet.com
Heirloom Roses	www.heirloomroses.com
Indiana Pioneer Cemeteries	www.rootsweb.com (link)
International Society of Arboriculture	www.treesaregood.com
Internet Resources for Nonprofits	www.ai.mit.edu/people/ellens/non/online.html
I Love Plants- links to garden and plant-related web sites	www.iloveplants.com
Legal help	www.usgennet.org www.legalanthropology.com
Michigan Legislature website Legal: chap.456-cemetery assns. And chap. 128 cemetery day in May	www.michiganlegislature.org

WEB SITES	
Mapping software	www.legacymark.com www.cemoffice.com
Michigan Historic Preservation Network	www.mhpn.org
Michigan State Historic Preservation (SHPO)	www.michigan.gov/shpo
Michigan State University Extension Service	www.msue.msu.edu
Monticello-Thomas Jefferson Center for Historic Plants	www.monticello.org
National Center for Preservation Training and Technology	www.ncppt.nps.gov
National Institute for Conservation Heritage Preservation	www.heritagepreservation.org
National Plant Database	www.plants.usda.gov
National Register for Historic Places	www.cr.nps.gov/nr
National Park Service, Heritage Preservation Services	www2.cr.nps.gov
Old House Gardens bulb catalog.	www.oldhousegardens.com
Oregon Historic Cemeteries Association	www.oregoncemeteries.org
Perennial Pleasures Nursery-heirloom plants and seeds	www.antiqueplants.com
Roses	www.avagara.com
Roses of Yesterday	www.rosesofyesterday.com
Research Grant Guides	www.researchgrant.com
Sad news-genealogy search, books, and library	www.sadnews.net
Saving Graves	www.savinggraves.com
Sculpture site-cemetery link	www.sculptor.org
Heritage Preservation-click on Save Outdoor Sculpture	www.heritagepreservation.org
Select Seeds	www.selectseeds.com
Stewart Iron Works-fabricators of fences, gates, and furnishings	www.stewartironworks.com
The Foundation Center-guide to grant seeking on the web/links	http://fdncenter.org
The Right Tree Handbook	www.mnpower.com/treebook/
U.S. Forest Service, Hazards Tree Page	www.na.fed.us/spfo/hazard/pubs.htm
U.S. General Services Administration-technical briefs	www.w3.gsa.gov
Washtenaw County cemeteries	www.rootsweb.com/~miwashte/
Wayne County cemeteries	www.rootsweb.com/~miwayne/wacemetery.htm
Wayne County cemetery records	www.interment.net/usmi/wayne.htm
Wayside Gardens-old roses	www.waysidegardens.com

Appendix C

GLOSSARY

The following glossary terms have 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 Preservation Manual for Historic Cemeteries in Arkansas;* and *Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones.*

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 (edge-bedded) 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.

Boxtomb
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.

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
separation of layers of stone along bedding planes.

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
film or encrustation on masonry of soluble salts, generally white and most commonly consisting of calcium sulfate that may deposit on the surface of stone, brick, or mortar if moisture moves through the masonry. 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. The erosion is usually due to weathering or pollution.

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.

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.

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.

Grave marker
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.

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 limestone 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 grave marker erected as a memorial at a place of burial.

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

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. The national cemetery in Michigan is Fort Custer National Cemetery in Augusta.

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 grave marker 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 best-preserved 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
A natural or man made condition that alters the original color or finish of the surface of the stones.

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.

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.

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 D

INFORMATION FOUND ON
MONUMENTS AND MARKERS

ORGANIZATION ABBREVIATIONS USED ON MONUMENTS AND MARKERS

Gravestone abbreviations are often a source of frustration to those surveying cemeteries. The following list compiled by Michael Joseph Mitchell, member of the Association for Gravestone Studies is one of the more complete lists available. The abbreviations on stones encountered in the cemetery should be viewed in their local, regional, and state context and their historical context, as there may be other interpretations of abbreviations.

AAONMS	Ancient Arabic Order of Nobles of the Mystic Shrine (Masonic)
AASR	Ancient and Accepted Scottish Rite (Masonic)
ABA	American Benefit Association
AF&AM	Ancient Free and Accepted Masons
ALOH	American Legion of Honor
AMD	Allied Masonic Degree
AMORC	Ancient and Mystical Order Rosae Crucis (Rosicrucians)
AMOS	Ancient Mystic Order of Samaratins (see IOOF)
AOF	Ancient Order of Foresters
AOH	Ancient Order of Hibernians
AOKMC	Ancient Order of Knights of Mystic Chain
AOUW	Ancient Order of United Workmen
APA	American Protective Association
AOM	Ancient Order of Mysteries (Masonic)
AUSA	Association of the United States Army
AUV	Association of Union Veterans
B of RTM	Brotherhood of Rail Road Track Men
BARE	Benefit Association of Railway Employees
BAY	Brotherhood of American Yeomen
BK of M	Black Knights of Molders
BKA	Benevolent Knights Association
BLE	Brotherhood of Locomotive Engineers
BLF&E	Brotherhood of Locomotive Firemen and Engineers
BPOE	Benevolent and Protective Order of Elks
BPOEW	Benevolent and Protective Order of Elks of the World
BRT	Brotherhood of Railway Trainmen
BSA	Boy Scouts of America
C of C	Children of the Confederacy
CAR	Children of the American Revolution
CBKA	Commandery Benevolent Knights Association
CBL	Catholic Benevolent Legion
CCTAS	Crusaders Catholic Total Abstinence Society
CDof A	Catholic Daughters of America

Abbreviation	Interpretation
CKof A	Catholic Knights of America
CMBA	Catholic Mutual Benefit Association
COOF	Catholic Order of Foresters
CSA	Confederate States Army
CSN	Confederate States Navy
CTAS	Catholic Total Abstinence Society
DAR	Daughters of the American Revolution
D.O.A./DA	Daughters of America
DAC	Daughters of the American Colonists
DAV	Disabled American Veterans
DOKK	Dramatic Order Knights of Khorassan (Knights of Pythias)
DoL	Daughters of Liberty
DOLLUS	Dames of the Loyal Legion of the United States
DON	Daughters of the Nile (Masonic)
DUV / DUVCW	Daughters of Union Veterans of the Civil War
EAA	Experimental Aircraft Association
EAU	Equitable Aid Union
EBA	Emerald Beneficial Association
FAA	Free and Accepted Americans
FCL	Fraternity, Charity, Loyalty, seen on some Union and Masonic stones
FMF	Fleet Marine Force
FOAST	Fraternal Order of Alaska State Troopers
FOE	Fraternal Order of Eagles
FOF	Fraternal Order of Firefighters
FOP	Fraternal Order of Police
GAR	Grand Army of the Republic
GSA	Girl Scouts of America
GALSTPTR	German American Legion of St. Peter
GLAUM	Grand Lodge Ancient Order of Mysteries-Masonic Order
GLDS	Grand Lodge Daughters of Scotia
GUOOF	Grand United Order of Odd Fellows
IBBH	International Brotherhood of Blacksmiths and Helpers
ICBU	Irish Catholic Benevolent Union
IOA	International Order of Alhambra
IODE	Independent Order, Daughters of the Empire
IOF	Independent Order of Foresters
IOGT	International Order of Good Templars
IOH	Improved Order of Heptasophs
IOI	Independent Order of Immaculates

Abbreviation	Interpretation
IOJD	Independent Order of Job's Daughters
IOKP	Independent Order of Knights of Pythias
IOOF	Independent Order of Odd Fellows
IOOF-PM	Independent Order of Odd Fellows Past Master
IOR	Independent Order of Rechabites
IORG	International Order of Rainbow Girls (Masonic)
IORM	Improved Order of Redmen
IOStL	Independent Order of St. Luke
IOV	International Order of Vikings
ISDA	Italian Sons and Daughters of America
ISH	Independent Sons of Honor
IUOM	Independent United Order of Mechanics
IWW	Industrial Workers of the World
JAOUW	Junior Order-Ancient Order of United Workmen
J.O.A.M.	Junior Order of American Mechanics
J.O.U.A.M.	Junior Order of United American Mechanics
K.of C.	Knights of Columbus
K.of P.	Knights of Pythias
K of FM / KFM	Knights of Father Matthew
K of H	Knights of Honor
K of L	Knights of Loyola
K of SJ	Knights of St. John
K of STP	Knights of St. Patrick
K of STW	Knights of St. Wenceslas
K of T / KT	Knights of Tabor
K of TM	Knights of the Macabees
KG	Knights of St. George
K.M. / KM	Knights of Malta (Masonic)
KM	Knights Militant (KKK)
K.T. / KT	Knights Templar (Masonic)
KGC	Knights of the Golden Chain
KGC	Knights of the Golden Circle
KGE	Knights of the Golden Eagle
KGL	Knight Grand Legion
KHC	Knights of the Holy Cross
KKK	Knights of the Ku-Klux-Klan
KLH	Knights and Ladies of Honor
KMC	Knights of the Mystic Chain
KOL	Knights of Labor

Abbreviation	Interpretation
KPC	Knights of Peter Claver
KSF	Knights of Sherwood Forest
KSL	Knights of St. Lawrence
KOTM	Knights of the Macabees
KSTG	Knights of St. George
KSTI	Knights of St. Ignatius
KSTJ	Knights of St. Joseph
KSTM	Knights of St. Martin
KSTP	Knights of St. Peter
KSTP	Knights of St. Paul
KSTT	Knights of St. Thomas
LAOH	Ladies Ancient Order of Hibernians
LGAR	Ladies of the Grand Army of the Republic
LKof A	Loyal Knights of America
LOL	Loyal Order Orange Lodge (The Orange Order) (Orange Men)
L.O.M.	Loyal Order of Moose
LOOM	Loyal Order of the MOOSE
LOVUS	Legion of Valor of the United States
MAW	Marine Air Wing
MBS	Mutual Benefit Society
MCL	Marine Corps League
M.W.A.	Modern Woodmen of America
MOPH	Military Order of the Purple Heart
MOS&B	Military Order of the Stars and Bars
MOVPER	Mystic Order of Veiled Prophets of the Mystic Realm (Grotto)
MOLLUS	Military Order of the Loyal Legion of the United States
NL	Navy League
NU	National Union
N.O.W.	Neighbors of Woodcraft
NCOA	Non-Commissioned Officers Association (Military Society)
NEOP	New England Order of Protection
NOK	New Order Knights (KKK)
NSDAR	National Society Daughters of the American Revolution
NSSUP	National Society Sons of Utah Pioneers
O of A	Order of Amaranth (Masonic)
O of UF	Order of United Friends
OCF	Order of Chosen Friends
OCR	Order of Confederate Rose
OES	Order of the Eastern Star

Abbreviation	Interpretation
OGC	Order of the Golden Crodd
OSC	Order of Scottish Clans (St. Andrews Societies)
ODHS	Des Schwestern Verbandes (Sisters of the Federation)
OUAM	Order of United American Mechanics
PFof A	Patriotic Friends of America
PH	The Order of Patrons of Husbandry (The Grange)
PM	Patriarchs Militant (Independent Order of Odd Fellows)
PBA	Police Benevolent Association
POW	Prisoner of War
RA	Royal Academy
RA	Royal Arcanum
RK	Roman Knights
R.A.M.	Royal Arch Masons
R.N.A.	Royal Neighbors of America
ROJ	Royal Order of Jesters (Masonic)
RMOKHSJ	Religious and Military Order of Knights of the Holy Sepulcher of Jerusalem
RO-AUM	Rosicrucian Order (Masonic)
RSGF	Royal Society of Good Fellows
RSM	Royal and Select Masons
RSTV	Rite of St.Vita
RSTV	Rite of St.Vaciara
RTT	Royal Templars of Temperance
S of E	Sons of England
S of St.G	Sons of St. George
SR	Scottish Rite (Masonic)
ST	Sons of Temperance
SV	Sons of Veterans of the United States of America
S.A.L.	Sons of the American Legion
SAR	Sisters of the American Revolution
SAR	Sons of the American Revolution
SBL	Society B. Lafayette
SCV	Sons of Confederate Veterans
SUV/SUVCW	Sons of Union Veterans of the Civil War
S.A.W.V.	Spanish American War Veteran
SBCL	Saint Bonifazius Catholic Union
SMAA	Scandinavian Mutual Aid Association
SNA-AUM	Shrine of North America (Masonic)
S.S.M.A.	Soldiers and Sailors Memorial Association
TCL	Tall Cedars of Lebanon (Masonic)

Abbreviation	Interpretation
TH	Temple of Honor and Temperance-Independent Order of Odd Fellows
TPLF	Temple of Honor and Temperance
TROA	The Retired Officers Association
UR	The Uniform Ranks designation
UCV	United Confederate Veterans
UDC	United Daughters of the Confederacy
UFL	Union Fraternal League
U.S.A.	United States Army
U.S.N.	United States Navy
U.S.A.F.	United States Air Force
U.S.C.G.	United States Coast Guard
U.S.M.C.	United States Marine Corps
UAOD	United Ancient Order of Druids
UOPF	United Order of Pilgrim Fathers
VFW	Veterans of Foreign Wars
W.C.	Woodmen Circle
W.O.W.	Woodmen of the World
W.O.W.	Women of Woodcraft
WKSC	White Knights of the Southern Cross (KKK)
YMCA	Young Men's Christian Association
YWCA	Young Women's Christian Association
MILITARY MARKERS	
BTN	Battalion
DIV	Division
ART	Artillery
INF	Infantry
CAV	Cavalry
CO	Company
PVT	Private
CPL	Corporal
SGT	Sergeant
WO	Warrant Officer
LT JG	Lieutenant Junior Grade
LT	Lieutenant
COM	Commander
CAPT	Captain
COL	Colonel
MAJ	Major
ADM	Admiral
GEN	General

COMMON LATIN PHRASES USED ON MARKERS

Yet another confusing part of reading tombstone inscriptions is the phrases that were often carved into the stone as an addition to the epitaph or simply as the epitaph. These phrases were carved in Latin and it was not uncommon for phrases such as those listed below to be inscribed on Catholic stones and Protestant stones in the twentieth century. The list, taken from the book *Iconography of Death* by Debi Hacker, will assist you in understanding the meaning of the inscription on the stones.

AB INITIO, AB FINEM	"From beginning to end"
AMOR DEI	"The love of God"
AVE MARIA, GRATIA PLENA	"Hail Mary, Full of Grace"
DEO VINDICE	"Latin for "God will Vindicate"
ECCE AGNUS DEI	"Behold, the Lamb of God"
FECIT	"Maker," meaning the stonecutter
FUGIT HORA	"Time Flies"
HIC DORMIT	"Here Rests..."
HIC IACET SEPULTUS	"Here lies buried..." also seen as initial H.I.S.
HIC PAUSAT	"Here Rests..."
HIC REQUIESCIT	"Here Rests..."
HIC SEPULTUS	"Here (lies) buried..." also seen as initials H.S.
HIC SITUS EST	"Here lies..."
IN MEMORIUM	"In memory of..."
LIBER VITAE	"The Book of Life." The Book of Life was believed to be a record of the elect, to be opened at the end of the world.
MANUS DEI	"Hand of God"
MEMENTO MORI	"Remember that you must die"
PAX	"Peace"
REQUIESCIT IN ISTO TUMOLO	"In this grave rests..."
REQUIESCIT IN PACE	"He/She rests in peace." Also seen as initials R.I.P.
SIC ITUR AD ASTRA	"Thus is accomplished the journey to the stars"
SIC TRANSIT GLORIA MUNDI	"So passes the glory of the world"
SPIRITUS SANCTUS	"The Holy Spirit"
SPUS SCUS	an abbreviation for the Latin phrase "Spiritus Sanctus"
VERUM DEI MANET IN AFTERNUM	"The word of God Endureth forever." Often inscribed on the open pages of the Bible on a tombstone. Also seen as initials V.D.M.A.
VOX CLAMANTIS IN DESERTO	"The voice (of one) crying in the wilderness"

SYMBOLS AND THEIR MEANINGS

Debi Hacker's book, *The Iconography of Death*, is the source of the following list of commonly used symbols.

Carving	Suggested Meaning
Acorn	Symbol of fertility and life, power of spiritual growth
Anchor	Hope; may represent sailing, seafaring or service in the Navy
Angels	Rebirth, protection, divine love, angels lead souls to heaven, praying angel looking up represents intercession
Apple	The fruit of salvation, does not represent the fruit eaten in the Garden of Eden
Arches	Roman symbol of the heavens; passage from this world into the next; triumph in death; journey to heaven
Arrow	When held by a cherub represents a spiritual weapon, dedicated to the service of God; represents death; could represent hunting or military if used with other weapons
Banner	Victory; God's love; triumph, rejoicing
Beehive	Symbol of a pious and unified community
Bed	A visual denial of death, as in "She is not dead, but sleepeth"
Bird	The soul; bird in flight represents the soul's flight to heaven
Book	Wisdom, knowledge, education; the Book of Life or record of the elect, which will be open at the end of the world
Bouquet	Life cut short, grief
Burning Flame	The soul; eternal life in the hereafter
Butterfly	Resurrection
Calla Lily	Marriage, fidelity
Cannon	Military service or profession
Celtic Cross	Union of heaven and earth
Chain	Links of the chain represents earthly existence; if one link is broken it represents the end of earthly existence; chain with three links represents the International Order of Odd Fellows
Chalice	Symbol of Christian faith
Cherub	Represents a heaven bound soul; spiritual resurrection; usually on children's stones
Clouds	Symbol of heaven, heavenly reward, or unseen God
Column	Broken column represents life cut short; column with facades represents heaven
Crown	Christian fortitude; victory over sin and death; promise of eternal life
Cypress	Devotion to God; immortality; eternal life; mourning
Dog	As man's best friend it represents watchfulness and fidelity
Door	Entry to Heaven
Dove	Purity of the soul; peace; in flight, represents the soul going to heaven, the Holy Ghost

Carving	Suggested Meaning
Eagle	The Christian soul strengthened by grace; may also represent nationalism, military profession, or Civil War veteran; Masonic symbol
Eye	All-knowing and ever-present God; Masonic symbol; Holy Trinity
Female Figure	Grief, sorrow
Fern	Humility, solitude and sincerity
Finger Pointing Downward	Deceased has been chosen by God
Finger pointing upward	Indicates that the soul has gone to heaven
Fleur-de-Lis	Trinity; the Virgin Mary; the three segments indicate faith, wisdom, and valor
Flowers	Goodness of life, abundant life; lushness of heavenly paradise
Garland	Victory in death
Gate	Death; heaven; reward of the faithful
Grapes	The grape is the symbol of the blood of Christ; spiritual resurrection
Hand	The hand of God
Hands Clasped	Farewell; hope of a meeting in heaven; union of marriage
Harp	Joy; worship; music of heaven; Irish descent; musical ability of deceased
Heart	Love; devotion; soul triumphant; courage
Hourglass	Symbol of mortality and the swift passing of earthly time
Ivy	Symbol of faithfulness and eternal life; death; friendship
Lamb	Symbol of Christ; innocence (found most often on a child's grave); on adult grave it represents a devout Christian; guidance from God
Lamp	Eternity; devotion to God; guidance and enlightenment from God; wisdom; piety; divine inspiration
Lily of the Valley	Devotion to God; purity, devotion; humility
Log	Divine harvest; end of life; Woodsman of the World symbol; part of the "rustic movement"
Masonic Compass	Freemasons
Moon	Eternity; sign of the second coming
Morning Glory	Shortness of a young life
Oak	Strength of faith and virtue; endurance of the Christian against adversity; Christ; Christian faith; valor
Obelisk	Eternal life; regeneration; when draped, represents mourning
Olive	Peace; marriage; fertility; family; crown or wreath of olives represents a spiritual victory
Open gates	The spirit entering heaven
Palm	Symbol of victory; reward of the righteous; a righteous man,
Peacock	Immortality through resurrection
Pine Cone	Ancient symbol for regeneration and fertility; immortality
Poppies	Rest; peace; mortality
Rainbow	God's throne; heaven; symbol of pardon and of the reconciliation given to the human race by God

Carving	Suggested Meaning
Rope	Binding together, as in a fraternal organization
Rose	Devotion to God; red rose represents martyrdom; white rose represents purity; paradise; the Virgin Mary; motherhood; rosebud represents a life cut short; love; grief
Scallop Shell	Birth; new life; baptism
Scythe	Death; end of life, divine harvest; man's mortality
Severed Branch	Death; end of life cycle
Sheaf of Wheat	Divine harvest; bounty of life; fruitful life; end of a fruitful life
Star	Divine guidance, Christ; heaven
Sun Shining	Christ; heavenly light; heaven
Swords	Military profession
Sword, broken	Life cut short
Swords, crossed	Represents ranking military person
Swords, points down	Death during military service
Sword held by angel	Justice and mercy; judgment
Thistle	Scottish descent; Scotland; earthly sorrow and sin
Tree	Tree of Knowledge; symbol of life or death, depending on whether the tree is healthy or cut down
Tree stump	Part of the "rustic" movement; symbol of Woodsman of the World; death is inevitable, end of life
Triangle	Holy Trinity
Trumpet	Praise of God; Judgment Day
Urn	Mortality; grief; draped urn represents mourning
Violet	Humility, a flower of spring represents youth; short life
Weeping Willow	Mourning; sorrow; Christian faith, spreading of the Gospel;
Wings	Symbol of divine mission; angels, archangels, seraphim and cherubim have wings
Winged Face/Head	The soul in flight, joyful resurrection
Winged Hourglass	Mortality, mans fleeting earthly existence
Wreath	Victory in death

Appendix E

PRESERVATION GUIDELINES

STANDARDS FOR PRESERVATION & REHABILITATION

The following standards for the preservation and rehabilitation of historic landscapes have been taken from the Secretary of the Interior's *Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Properties*. We include these standards in order to give some guidance in what is acceptable preservation practice. For an unabridged version of the secretary of the interior's guidelines, see the National Park Service web site or address in the resources section of the appendix.

Preservation Standards

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.

2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration necessitates repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

REHABILITATION STANDARDS

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterizes the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such s manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

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In 1997 Gregg King joined the Canton Township Parks Division and within two years he found himself in charge of maintenance and preservation efforts at the township's three historic cemeteries. Looking for local contractors to aid in his work, Mr. King soon realized that there were almost as many opinions and methods as there were contractors. Realizing a need for a local, comprehensive and historically accurate source of historic cemetery conservation methods, he began the task of exhaustively researching, and synthesizing available information. This manual is the result of Gregg's years of investigation and research obtaining information from organizations such as the Association for Gravestone Studies and the National Preservation Institute. It is written in collaboration with Kosky Glynn & Saborio LLC, Historic Preservation Consultants, and with the enthusiastic support and financial aid of Canton Township and the Michigan State Historic Preservation Office. For local governments, cemetery and civic organizations, and laypersons involved in cemetery care and conservation it is an easy to follow and user-friendly guide and source book which guides the reader through the process, from documentation to cleaning and repair as well as landscape considerations. For Michigan it is an aid in preserving its small historic cemeteries using in part the Secretary of the Interior's *Guidelines for Historic Preservation*. For Gregg King it is an offering to those who find themselves considering a cemetery conservation project in hopes that it will assist them in their journey.

Greenwood Cemetery Advisory Committee

FINAL REPORT 2014

City of Birmingham
A Walkable Community

OVERVIEW

On October 21, 2013, the Birmingham City Commission adopted resolution #10-297-13 establishing the ad hoc Greenwood Cemetery Advisory Committee to balance the interest of those interred in Greenwood Cemetery and their surviving family members, those who wish to be interred in Greenwood Cemetery, those will pay for the regular care and maintenance of the cemetery in perpetuity, and those who wish to preserve Greenwood Cemetery as a historic site. The committee was charged with seven core duties in fulfilling its purpose as outlined in its authorizing resolution. This final report provides the committee's recommendations resulting from several meetings of analyzing the issues and opportunities for the cemetery.

COMMITTEE MEMBERS

Chairperson -	George Stern
Vice Chairperson -	Pamela DeWeese
	Kevin Desmond
	Darlene Gehringer
	Linda Peterson
	Laura Schreiner
	Daniel Share
Staff	Joseph A. Valentine, Interim City Manager
	Laura Pierce, City Clerk
	Christian Wuerth, Assistant to the City Manager

SUMMARY

In conclusion of the efforts put forward by the Greenwood Cemetery Advisory Committee several recommendations have been prepared for consideration by the City Commission. Many of the recommendations contained in this report can be supplemented by the additional documentation contained in the Appendices section. Commentary has been added to some of the recommendations to provide clarity and additional explanation of the intent behind particular recommendations.

Any recommendations falling under the purview of the Historic District Commission or any other City authority should be referred to the Commission or the applicable authority for appropriate action.

A total of 10 public meetings were held during the course of the committee's deliberations on these issues. This included a meeting specifically dedicated to solicit input from the public on the recommendations contained in the final report.

GREENWOOD CEMETERY ADVISORY COMMITTEE RECOMMENDATIONS

1. Prepare recommendations regarding whether or not to proceed with the reclamation of abandoned burial spaces within the existing cemetery and, if so, the best method for doing so.

Recommendations:

1. The Committee recommends the City identifies the unsold/unused burial spaces at the cemetery and offer them for sale.

2. The Committee recommends that the City of Birmingham shall promptly commence reclamation proceedings under Public Act 46 of 1931 to acquire title to burial spaces believed to be abandoned for at least 50 years. The City of Birmingham shall complete those reclamation proceedings at the earliest practical time. Thereafter, the City of Birmingham shall review the cemetery records at least every 10 years to determine whether to undertake additional reclamation proceedings.

   Commentary:
   The reclamation process requires at least three different types of skills: documentary research and the preparation of notices; physical verification of whether burials have occurred in plots believed to be vacant; and legal experience and licensure. The City administration can manage the reclamation process using, where necessary, contractors for physical verification and to conduct legal proceedings. The Committee's preference is that the City manage the reclamation process. However, the Committee recognizes that managing the reclamation process may impose additional costs, require the City to forego or defer other important services for residents or may unduly delay completion of the reclamation process. The City Commission, not the Committee, is the body charged with allocating scarce public resources. If the City Commission decides that the reclamation process is best managed by a third party, there are a variety of groups in addition to cemetery professionals who have the capability of –and may have interest in-- managing the reclamation process, including the Birmingham Historical Society, the Birmingham Public Library, History Departments at local colleges and universities, or law firms.

3. The Committee recommends that any sales occurring as the result of the reclamation process initially be offered to those currently on the Interest List according to the date their name was added to the List and thereafter offered to the general public.

4. The Committee recommends that for any future plot sales by the City a restriction be placed upon such sales requiring that the owners wishing to sell these plots may only return the unused plots to the City for resale and that no private sales of those plots may occur. This recommendation does not apply to burial sites

privately owned prior to the date the City adopts this recommendation, unless the City subsequently acquires any such burial site.

5. The Committee recommends that the City digitize its burial records.

6. The Committee recommends the City utilize both existing burial records and Ground Penetrating Radar (GPR) to develop a map of all known burial sites.

7. The Committee recommends the City notify owners whose records reflect no burials (single spaces and within family lots) within the last 50 years to determine if they wish to sell back to the City.

8. The Committee recommends that letters be sent by first class mail to those on the Interest List to purchase burial rights to confirm that they wish to remain on the List and with the consequence that by not responding within 30 days they will be removed from the Interest List. The Committee further recommends that the sale of City owned plots be sold pursuant to this List in accordance with the following procedure:

    a. Letters are sent to those on the Interest List pursuant to the above recommendation.
    b. Anyone from the List who did not respond when the time period expires will be allowed to be added back on the List on a first-come, first-serve basis.
    c. This recommendation does not apply to burial sites privately owned prior to the date the city adopts this recommendation, unless the city subsequently acquires any such sites.

    Commentary:
    Given the importance of these letters, the City should include language on the outside of the envelope that clearly states “Greenwood Cemetery – Time Sensitive.”

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2. Prepare recommendations regarding whether or not to plan for the development of new burial spaces within the existing cemetery and, if so, the best method for doing so.

Recommendation:

1. The Committee recommends that the roadway between Sections K and L be developed to accommodate an estimated 70 traditional casketed spaces and with the possibility of installing a dignified pathway to provide access.

2. The Committee recommends that the City of Birmingham investigate the feasibility of installing columbaria for the inurnment of cremated remains, including but not limited to, the north boundary of Greenwood Cemetery.

Commentary:
The Committee believes that there is substantial existing, and will be substantial future, demand for sites for cremated remains within Greenwood Cemetery. The north side of the Cemetery, where it begins to slope down to the Rouge River, is a suitable site for creating an attractive expansion of sites that might be coordinated with existing natural features and/or an expansion of the Rouge River trail. However, consultation with the City Engineer reveals that there are a number of complicated questions about whether and how this might be accomplished, such as the character of the soil in the area and flood plain regulation. The Committee lacks the funds and the expertise to investigate these questions.

This recommendation might be one that the City Commission wishes to implement at a future time. If the City Commission accepts the Committee's recommendations, there will be a substantial number of sites available for sale within a relatively short time period. If the supply of sites exceeds current demand, future investigation of this possibility might be better informed by then-existing conditions.

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3. Prepare recommendations regarding whether or not to plan for the expansion of the existing cemetery and, if so, the best method for doing so.

Recommendation:

1. The Committee recommends against expanding Greenwood Cemetery's boundaries at the present time.

   Commentary:
   There are two vacant lots adjacent to the Cemetery – one to the east, and one to the northwest. The Committee accepts the recommendation of the consultant that the lot to the northwest would be difficult to integrate into the Cemetery. The vacant lot to the east is presently too expensive to be feasible for cemetery use. Should the lot to the east remain vacant and become available at a reduced price such that the revenue from the sale of additional burial sites will exceed the cost of installing the improvements necessary to create additional burial plots, screening the property from the residential neighbors to the east and north, and funding the trust to pay for annual maintenance and upkeep of that parcel, the Committee believes the expansion would be desirable.

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4. Prepare recommendations regarding whether or not to establish an endowment care fund to provide regular care and maintenance of the cemetery in perpetuity and, if so, the best method for doing so.

Recommendation:

1. The Committee recommends that the City of Birmingham establish a trust to pay costs of the maintenance, upkeep and improvement of Greenwood Cemetery now and in the future. The trust will be funded by the sale of City-owned burial plots and donations. The Committee further recommends that the trust be established through written documentation. The trust shall initially be managed with the expectation that income will pay for the costs of maintenance and upkeep of the Cemetery, and that principal will be utilized only from funds donated for specific improvements or when there is sufficient principal to fund perpetual care or in exigent circumstances.

   Commentary:
   A trust funded through the sale of available burial spaces the City now owns or subsequently acquires through reclamation proceedings should be established to assure the ongoing upkeep of Greenwood Cemetery reducing the burden on the City's general fund. Annual upkeep includes maintenance, repair or replacement of landscaped areas, roads, walkways, irrigation systems and historic memorials for which families cannot be located. When sufficient funds have accumulated, the trustees may create reserves for investment losses and capital improvements.

   While the Committee believes that the primary purpose of such a trust should be to assure the perpetual upkeep and maintenance of Greenwood Cemetery, the trust is also a suitable vehicle to fund improvements to the Cemetery. The Committee has made a recommendation about the types of improvements that would be desirable. The trust could be an appropriate entity to act as steward of funds donated for improvements to the Cemetery or a new entity, such as a "Friends of Greenwood Cemetery" could be created to solicit donations, earn a market rate of return and then donate funds to the City for specific cemetery projects.

   Because sales of burial spaces will occur over time, the trust will not be fully funded at its inception. Therefore, the City of Birmingham may wish to choose between paying the cost of annual maintenance until the trust principal accumulates to a sufficient amount that the income will pay those costs, or loaning sufficient funds to the trust to enable the income to pay the annual costs of maintenance without burdening the general fund.

2. The Committee recommends the City seek a legal opinion whether the cemetery is or could be classified as a park within the meaning of MCL 129.97a(1), such that the trust could earn a market rate of return.

3. The Committee recommends the City develop a donor program for improvements specific to and appropriate to the cemetery.

   Commentary:
   There are a number of improvements, such as benches, fountains or shelters for meditation and reflection, that would enhance visitors' experience at the

Cemetery. A combination of two or more of these features, like a meditation shelter with seating or a fountain (either of which could also incorporate a columbarium), might be especially desirable. The Committee believes that any such enhancement should be specifically designed for the Cemetery and should be different from the existing donor program used in the City's parks. The Committee believes it is vital to preserve the historic nature of Greenwood Cemetery. Any improvements should be made under a comprehensive, long-term plan that blends Greenwood Cemetery's history and character with the natural landscape. Consultation with the Historic District Commission would help assure all these aesthetic goals can be achieved.

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5. Prepare recommendations regarding the need for a standing cemetery advisory committee and, if so, the duties the committee shall be charged with.

Recommendation:

1. The Committee recommends that the City Commission appoint 5 persons to a Greenwood Cemetery Board, chosen from among the citizens of Birmingham, representing diverse interests, such as persons with family members interred in Greenwood Cemetery; owners of burial sites within Greenwood Cemetery intending to be interred in Greenwood Cemetery; persons familiar with and interested in the history of Birmingham; persons with familiarity and experience in finance, investment, landscape architecture, horticulture, law or cemetery or funeral professionals. The Greenwood Cemetery Board should be empowered to make recommendations to the City Commission as to modifications to the rules and regulations governing Greenwood Cemetery, what capital improvements should be made to the Cemetery, and how to respond to future demands for cemetery services.

   Commentary:
   The Committee values the City of Birmingham's ownership of Greenwood Cemetery. It is entirely appropriate that the City continue to own the Cemetery as an asset that the entire community can benefit from. Thus, the ultimate control over the rules and regulations of the Cemetery, as well as how the Cemetery might best respond to future community needs which are presently unknowable, are best left to the City's publicly-elected officials.

   Nonetheless, the long-term direction of the Cemetery requires a certain amount of specialized knowledge which can be gained either from prior experience in the area or active involvement with the Cemetery. The Committee believes that an appropriate balance of specialized focus and City control can be achieved by having a group of citizens in charge of monitoring the Cemetery and recommending to the City how the Cemetery might best be managed.

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6. Solicit and receive public input on those recommendations.

The Committee held meetings on the following dates. All meetings were publically noticed and were open to the public.

January 14, 2013	February 25, 2014	April 10, 2014
January 30, 2014	March 13, 2014	April 22, 2014
February 13, 2014	March 25, 2014	May 8, 2014 – Public Input Meeting
		May 12, 2014

7. *Finalize and present recommendations to the City Commission by June 30, 2014.*

The final report of the Greenwood Cemetery Advisory Committee was presented to the City Commission on May 19, 2014.

8. Additional Recommendation

Recommendation:

1. The Committee recommends that the City of Birmingham review the Greenwood Cemetery Management Agreement dated June 24, 2013 in light of the Committee's other recommendations to determine whether to modify the Agreement to be consistent with those recommendations the City Commission adopts or to terminate the Agreement.

   Commentary:
   As noted in Recommendation 2 of Section 1, the Committee recognizes the City Commission has the responsibility to allocate the City's resources and therefore should decide what, if any, tasks to outsource. The City should consider operating Greenwood Cemetery itself to generate operating surplus for perpetual care of the cemetery. The Committee believes that if the City elects to retain the Agreement, it should be amended to conform to applicable law and to expand the clause prohibiting discrimination in employment to include the obligation of the contractor to respect the burial customs of persons, without regard to religious affiliation.

2. The Committee recommends that the City Commission review the Greenwood Cemetery Operational Procedures, Conditions and Regulations to ensure they are fully inclusive.

   Commentary:
   The Committee learned at the Public Input Meeting that the Cemetery Operational Procedures, Conditions and Regulations prohibiting burials on Sunday without special permission adversely affects and has a chilling impact on some members of our community. Greenwood Cemetery should be a welcoming place, convenient to use, for the entire community. The Committee believes a review of the Operational Procedures and Regulations is appropriate.

APPENDICES

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ARTICLE II. GREENWOOD CEMETERY

Sec. 34-26. Supervision.
Sec. 34-27. Sale of lots.
Sec. 34-28. Rules and regulations.

Sec. 34-26. Supervision.

The care, maintenance and operation of Greenwood Cemetery in the city shall be under the supervision and control of the city manager.

Sec. 34-27. Sale of lots.

The sale of the lots in Greenwood Cemetery, and the issuance of burial and other permits pertaining to the use of lots in the cemetery shall be under the control and supervision of the city clerk. Upon payment of an administrative fee in the amount set forth in the schedule of fees, charges, bonds and insurance, such clerk shall record all sales and transfers of lots in the cemetery. The clerk shall keep an accurate record of all interments in the cemetery.

Sec. 34-28. Rules and regulations.

The city manager may adopt such rules and regulations for the control of Greenwood Cemetery, for the conduct of persons therein, and governing the charges for lots, burial spaces and services, as he may deem necessary. Such regulations shall, when approved by resolution of the city commission, have the full force and effect of law, and shall be binding upon all persons in and about the cemetery. All such regulations shall be available to the public at the office of the city clerk, and elsewhere as the manager may direct.

PUBLIC CEMETERIES
Act 46 of 1931

AN ACT to supplement the laws providing for the establishment, control, maintenance and care of public cemeteries by cities and townships within this state; to define the powers and duties of cemetery boards and other public officials invested by law with the management thereof; to provide for the termination and forfeiture of rights in certain unused burial spaces in such cemeteries; to prescribe and regulate the procedure with reference thereto; to authorize the resale of such spaces and to direct the investment and use of the funds received therefrom; and to repeal all acts or parts of acts inconsistent with the provisions hereof.

History: 1931, Act 46, Eff. Sept. 18, 1931;—Am. 1947, Act 149, Eff. Oct. 11, 1947.

The People of the State of Michigan enact:

128.11 Definitions.

Sec. 1. The term "cemetery" as used herein shall be deemed to refer to any public cemetery owned, managed or controlled by any city, village or township within this state. "Cemetery Board" as used herein shall be construed as referring to and including any board, trustees or public official or officials invested by law with the duty of managing or controlling any public cemetery as herein defined. "Burial space" means a lot or portion thereof in any cemetery as aforesaid designed and intended for the interment of human bodies or of a human body, but not used for such purpose. "Owner" means any person or persons owning or possessing the privilege, license or right of interment in any burial space.

History: 1931, Act 46, Eff. Sept. 18, 1931;—Am. 1947, Act 149, Eff. Oct. 11, 1947;—CL 1948, 128.11;—Am. 1949, Act 107, Imd. Eff. May 17, 1949.

128.12 Failing or neglecting to care for and maintain burial space; proceedings for termination and forfeiture of owner's rights and interest; resolution; petition; service; publication of hearing notice; failure to appear and answer; default.

Sec. 2. If the owner of a burial space in a public cemetery, subject to the provisions of this act, fails and neglects for a period of 7 years or more to care for and maintain the burial space in accordance with the laws, rules, and regulations relating to the care and maintenance of burial spaces, the cemetery board may institute proceedings for the termination and forfeiture of the owner's rights and interest in the burial space. If the cemetery board determines that the owner has failed or neglected to care and maintain the burial space, the cemetery board shall adopt a resolution reciting this determination. A certified copy of the resolution shall be served on the owner personally by a competent person or shall be sent by first class mail to the owner's last known address. If within 30 days after the sending of the resolution the owner does not comply or make provisions for complying with the laws, rules, and regulations, the cemetery board may cause a petition to be filed in the circuit court for the county in which the cemetery is located. The petition shall set forth the facts relating to the sale and ownership of the burial space, the owner's failure and neglect to comply with the laws, rules, and regulations for the care and maintenance of the burial space, and shall ask for the termination and forfeiture of the owner's rights to the burial space. The petition shall be noticed for a hearing, on a date not less than 40 days from the date of filing. Within 15 days after filing, a copy of the petition with the hearing notice shall be personally served on the owner or copies of the petition shall be sent by first class mail to the last known address of the owner. Notice of the hearing shall be published once each week for 3 successive weeks in a newspaper of general circulation in the county in which the cemetery is located. The first notice shall be published not less than 30 days before the date of hearing. After the petition and notice have been served or sent, it is the owner's duty to appear and answer to the allegations of the petition. If the owner fails to appear and answer on the day noticed for hearing, the owner's default may be entered in the manner provided for by law.

History: 1931, Act 46, Eff. Sept. 18, 1931;—CL 1948, 128.12;—Am. 1989, Act 14, Imd. Eff. May 10, 1989.

128.13 Burial space; proceedings for termination of rights; forfeiture; city, village or township may re-sell; copy of order served on owner; redemption.

Sec. 3. On the day noticed for the hearing of said petition or on any subsequent day to which the hearing of the cause is adjourned, the proofs and allegations of the parties shall be presented to the court and if said court shall determine therefrom that the owner has failed and neglected for a period of 7 years preceding the filing of said petition to comply with the rules and regulations relating to the maintenance and the care of said burial space or spaces, an order shall be entered accordingly, forfeiting and terminating the rights and interest of such owner in and to said burial space or spaces, subject to the provisions of this act, and shall further provide

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that the city, village or township, through and by its proper board or other officials shall have the right to re-sell such spaces and to use the proceeds derived from such sale in the manner and for the purposes hereinafter provided. A duly certified copy of such order shall, within a period of 10 days after the entering thereof, be personally served on such owner or shall be sent by registered mail to his last known place of address. Following the entering of such order aforesaid, the owner shall have a period of 60 days in which to redeem the right or interest in and to such spaces by paying the costs incurred in the proceeding, not exceeding $15.00, and by complying with the rules and regulations provided for the care and maintenance thereof, or by making provision for such compliance. If it shall be made to appear to the court at any time before the expiration of such 60 day period that the owner has so redeemed the right or interest, an order shall be made and entered, setting aside the previous order of termination and forfeiture.

History: 1931, Act 46, Eff. Sept. 18, 1931;—Am. 1933, Act 72, Imd. Eff. May 5, 1933;—Am. 1935, Act 18, Eff. Sept. 21, 1935;—Am. 1937, Act 150, Imd. Eff. July 2, 1937;—Am. 1939, Act 257, Imd. Eff. June 15, 1939;—Am. 1941, Act 187, Imd. Eff. June 16, 1941;—CL 1948, 128.13;—Am. 1949, Act 107, Imd. Eff. May 17, 1949.

128.14 Duty of board.

Sec. 4. It shall be the duty of the cemetery board to keep an accurate account of all expenses incurred by it under the provision of this act and shall charge such expenses against the burial spaces involved. If, at the expiration of 60 days from and after the entering of the order of termination and forfeiture hereinbefore provided for, the owner shall not have redeemed his right or interest, the board is authorized and empowered to maintain and care for the burial space or spaces involved and shall keep an accurate and detailed account of all money expended for such purpose.

History: 1931, Act 46, Eff. Sept. 18, 1931;—CL 1948, 128.14.

128.15 Reconveyance; perpetual care trust fund.

Sec. 5. At any time during the period of 2 years from and after the entering of the order of termination and forfeiture, the owner of any burial space or spaces shall be entitled to a reconveyance to him by the cemetery board on the payment of the costs and expenses incurred in said proceeding, not exceeding 15 dollars, in the care and maintenance of such space or spaces. If such reconveyance is not sought and obtained during said 2 year period, then and thereupon the cemetery board shall be authorized and empowered to offer such spaces for sale in accordance with the rules and regulations of said board governing the sale of lots and spaces in the cemetery concerned. The proceeds derived therefrom shall be used to defray the expenses incurred in accordance with the provisions of this act and the balance, if any, shall be placed in a fund to be known as the "Perpetual care trust fund" of the cemetery. The income therefrom shall be used by the board for the future maintenance, care and upkeep of the cemetery.

History: 1931, Act 46, Eff. Sept. 18, 1931;—CL 1948, 128.15.

128.16 Rights not forfeited; conditions.

Sec. 6. Nothing in this act contained shall be construed to authorize the forfeiture or termination of rights or interest in and to any burial space that has been used for interment nor shall any such space be subject to resale under the provisions hereof.

History: 1931, Act 46, Eff. Sept. 18, 1931;—CL 1948, 128.16.

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CITY OF BIRMINGHAM
GREENWOOD CEMETERY OPERATIONAL PROCEDURES, CONDITIONS AND REGULATIONS

DEFINITIONS:

The following words and phrases, when used, the following sections shall, for the purposes of these sections, have the meanings respectively ascribed to them, except in those instances where the context clearly indicates a different meaning.

a. "Cemetery" shall mean Greenwood Cemetery.

b. "Superintendent" shall mean the City Manager or his designee.

C. "Marker" shall mean a stone or object denoting the location of a grave and which does not exceed eighteen (18) inches in height, sixteen (16) inches in width, and twenty-four (24) inches in length.

d. "Monument" shall denote a memorial stone or object of a size in excess of that of a marker.

e. "Permanent outside container" shall be a container which encloses a casket. The following are considered permanent outside containers: concrete boxes, concrete, copper or steel burial vaults.

f. "Department" shall mean the Department of Public Services.

CONDUCT OF PERSONS

Every person entering the cemetery shall be responsible for any damage caused by such person while within the cemetery. No person under eighteen years of age shall enter the cemetery grounds unless accompanied by an adult responsible for his conduct, or unless permission has been granted by the Superintendent.

No person shall:

a. Enter the cemetery except through an established gate, and only during the hours from 8:00 A.M. to sundown.

b. Deposit or leave rubbish and debris on any part of the cemetery grounds.

c. Pick, mutilate, remove, or destroy any living plants or parts thereof, whether wild or domestic, on the cemetery grounds, except in the work of maintenance by City employees.

d. Break, injure, remove, or deface any monument or marker on the cemetery grounds.

e. Bring any dog or animal into the cemetery grounds, except by permission of the Superintendent.

f. Bring or discharge any firearm on the cemetery grounds, except in the conduct of military funerals.

g. Carry any refreshments or intoxicants into the cemetery grounds, or consume such while in the cemetery.

h. Use any form of advertising on cemetery grounds.

i. Conduct her/himself in any other than a quiet and respectful manner while on the cemetery grounds.

TRAFFIC REGULATIONS

All traffic laws of the City of Birmingham that are applicable to the operation of vehicles in cemeteries shall be strictly observed. Every person driving a vehicle into the cemetery shall be responsible for any damage caused by such vehicle.

No person shall:

a. Drive a vehicle within the cemetery at a speed in excess of ten (10) miles per hour.

b. Drive or park a vehicle on other than established driveways except for the purpose of maintenance or construction.

c. Turn a vehicle around within the cemetery except by following established driveways.

d. Use a cemetery driveway as a public thoroughfare.

MAINTENANCE AND PERPETUAL CARE

The City shall be responsible for the maintenance and repair of the driveways, buildings, water system and fences. The City shall also cut and maintain the grass areas, rake the leaves, trim and remove trees and shrubs, apply fertilizer as necessary, and in general maintain the cemetery as a place of natural beauty devoted to the burial of the dead.

The City shall not be responsible for any special care of any particular section, lot or burial space or for the maintenance or repair of any monument, marker or planting placed by the owner. The City shall not contract or agree to give special care to any section, lot or burial space except as above provided.

MONUMENTS, GRAVE MARKERS AND FOUNDATIONS FOR SAME

Monuments will be permitted only on lots having 90 or more square feet of area under one ownership. No more than one monument shall be erected on any lot.

The erection of all monuments and markers shall be subject to the following conditions:

a. Each monument or marker shall be supported on a concrete foundation not smaller than the base of the monument or marker it supports and not less than forty-two (42) inches deep below the ground surface. Such foundation shall be constructed only by the City after payment therefore has been made. Foundations will be poured April to November, weather dependent, as determined by the Superintendent. Requests received after November 1st will be held until conditions allow for installation.

b. Markers shall not exceed 1 ½ feet in height and shall have a minimum horizontal dimension at the base of not less than half of the height. All markers shall be in one piece, and shall be dressed on the bottom at right angles to the vertical axis. These measurements do not apply to government issue markers.

c. Designs for monuments or markers must be submitted to the Superintendent or to a person designated by him to act in his stead, when application is made for construction of foundations.

d. No monument or marker of artificial stone, sandstone, limestone, or soapstone will be permitted.

f. All contractors and workmen engaged in setting monuments shall be under the supervision of the Superintendent or a person designated by him, and they will be held responsible for any damage resulting from their negligence or carelessness. No work of setting monuments or markers shall be started that cannot be completed by the end of the day following the start of such work.

FLUSH MEMORIAL SECTION - F-NORTH ONLY

a. No, structures shall be placed or constructed by anyone other than employees of the Department of Public Services in the area of Greenwood Cemetery designated as the "Flush Memorial Section".

b. Bronze or granite markers only, set flush with the turf, will be permitted in this section. No structures which would extend above the ground level shall be permitted.

FUNERALS AND INTERMENTS

No lot or burial space shall be used for any purpose other than the interment of human remains and the erection of appropriate memorials to the dead.

No interment shall be made in Greenwood Cemetery until a proper burial permit has been issued, and until all other legally required permits have been issued by, and filed with, the proper authorities.

Department personnel will provide opening and closing of grave, initial and periodic maintenance only, and will not be responsible for handling and lowering vault or casket. Tents, lowering devices and other materials shall be furnished by the funeral director or vault company.

No grave shall be dug closer than six (6) inches from the line of any lot.

In all full burial interments, the casket shall be enclosed in a permanent outside container and shall be installed by the funeral director or vault company.

In all interments of cremated remains, the container shall be installed by the funeral director or vault company. The size of the container must be submitted with the request for burial.

All funerals within the cemetery shall be under the supervision of the Department. No burials are to be made on Sunday or legal holidays, except by permission of the Superintendent. Overtime charges will apply.

The Department must be notified through the City Clerk, of the time and exact location of proposed interments in time to allow not less than ten (10) hours of daylight to prepare the grave. If notification occurs less than 10 hours of daylight prior to burial, overtime charges will apply.

Interments that involve preparation or follow-up work during other than regular working hours will be done at an additional charge for the overtime portion of the time required. The maximum charge shall not exceed the normal charges plus the weekend/holiday fee.

When it is necessary to prepare for an interment or disinterment (location, opening and/or closing), an overtime charge will apply. This fee is in addition

to the normal interment or disinterment fee charged during regular working hours.

Interments of the remains of any persons other than the owner or an immediate member of his family will be permitted only after the written consent of the owner or the owner's authorized agent has been filed with the City Clerk. In case of a minor being the owner, the guardian may give consent upon proof of this authority to act.

Only one (1) interment in any one grave space shall be permitted, except in the case of a parent and infant child, two (2) children dying at about the same time, or in such other unusual cases as it shall seem to the Superintendent to be proper under the circumstances. Up to two cremated remains may be placed in the same space if the owner of the grave space or his heirs purchase the right to such inurnments. Should the owner permit the burial of such cremated remains, only one additional memorial shall be permitted on the grave space and such memorial shall not be larger than 24 x 12 x 4 inches and installed at lawn level. Up to three (3) cremated remains (only) may be placed on a single grave space.

DISINTERMENT

Disinterment of a full burial shall not be made without first obtaining a permit for the removal from the local health officer of Oakland County. Such request for removal is to be made upon such forms as may be provided, and shall include such information as may be required, by the local health officer.

SCHEDULE OF FEES AND CHARGES

Fees and other charges are as set forth in the City Code.

Adopted by the Birmingham City Commission October 18, 1971 Resolution No. 1434-71.

REVISION

Adopted by the Birmingham City Commission February 13, 1984 Resolution No. 02-97-84.

Adopted by the Birmingham City Commission February 23, 2009 Resolution No. 02-52-09.

The obligations of the City as herein set forth may, from time to time, be modified by the Birmingham City Commission.

City of Birmingham
A Walkable Community

BIRMINGHAM CITY COMMISSION
REGULAR MEETING, OCTOBER 21, 2013
RESOLUTION # 10-297-13

Present: Mayor Dilgard, Commissioners Hoff, McDaniel, Moore, Nickita, Rinschler, and Sherman
Absent: None

MOTION: Motion by McDaniel, seconded by Hoff:
Whereas, Greenwood Cemetery was established in 1825 on land donated by Dr. Ziba Swan; and

Whereas, Martha Baldwin organized the Greenwood Cemetery Association in 1885 after the cemetery had fallen into disrepair; and

Whereas, Martha Baldwin left $1,000 for the Cemetery Perpetual Care Fund upon her death in 1913, and

Whereas, the City of Birmingham took over the operation of Greenwood Cemetery in 1946 after the cemetery had fallen into disrepair once again; and

Whereas, Section 34-26 of the City Code places the care, maintenance and operation of Greenwood Cemetery under the supervision and control of the city manager; and

Whereas, Section 34-27 of the City Code places the sale of the lots in Greenwood Cemetery, and the issuance of burial and other permits pertaining to the use of lots in the cemetery under the control and supervision of the city clerk; and

Whereas, Section 34-28 of the City Code gives the city manager the power and authority to adopt such rules and regulations for the control of Greenwood Cemetery, for the conduct of persons therein, and governing the charges for lots, burial spaces and services, as he may deem necessary; and

Whereas, the City Commission wishes to establish a committee to advise the City Commission, City Manager, and City Clerk regarding the administration, maintenance, operation, preservation, and strategic planning for future development of Greenwood Cemetery; and

Therefore, be it resolved that the City of Birmingham establishes an advisory committee to be known as the "Greenwood Cemetery Advisory Committee" to balance the interest of those interred in Greenwood Cemetery and their surviving family members, those who wish to be interred in Greenwood Cemetery, those who will pay for the regular care and maintenance of the cemetery in perpetuity, and those who wish to preserve Greenwood as a historic site.

Duties: Considering the past, present and future operations of the Cemetery, the Committee shall be charged with the following duties:

1. Prepare recommendations regarding whether or not to proceed with the reclamation of abandoned burial spaces within the existing cemetery and, if so, the best method for doing so.

2. Prepare recommendations regarding whether or not to plan for the development of new burial spaces within the existing cemetery and, if so, the best method for doing so.

3. Prepare recommendations regarding whether or not to plan for the expansion of the existing cemetery and, if so, the best method for doing so.
4. Prepare recommendations regarding whether or not to establish an endowment care fund to provide regular care and maintenance of the cemetery in perpetuity and, if so, the best method for doing so.

5. Prepare recommendations regarding the need for a standing cemetery advisory committee and, if so, the duties the committee shall be charged with.

6. Solicit and receive public input on those recommendations.

7. Finalize and present recommendations to the City Commission by June 30, 2014.

Composition: The Committee shall be composed of the following:

1. Four members of the general public
2. One Historic District Commission member appointed by the Historic District Commission
3. One Museum Board member appointed by the Museum Board
4. One member of the Friends of the Birmingham Historical Museum & Park appointed by the Board of Directors of the Friends

At least one member shall be a surviving family member of an individual interred in Greenwood Cemetery. At least one member shall own a grave and intend to be interred in Greenwood Cemetery (this member may also be a surviving family member of an individual interred in the cemetery). At least one member shall not own a grave in Greenwood Cemetery (this member may be on the interest list). At least one member may be a licensed funeral director.

The City Manager, City Clerk, Director of Public Services, cemetery contractors and subcontractors may be present at all Committee meetings, take part in all discussions but shall have no vote.

Terms of office: The Committee's term and the term of each member shall run until December 31, 2014 at which time this Resolution shall sunset and be of no further force or effect unless the City Commission resolves to continue the Committee's term.

Compensation: The Committee shall serve without compensation.

Meetings: The Committee shall not be a "public body" as defined by the Open Meetings Act (Act 267 of 1976). However, all Committee meetings shall be open to the public and held in accordance with the Open Meetings Act.

Minutes: The Committee shall not be a "public body" as defined by the Open Meetings Act (Act 267 of 1976). However, the Committee shall keep minutes of each meeting in accordance with the Open Meetings Act.

Records: The Committee shall not be a "public body" as defined by the Freedom of Information Act (Public Act 442 of 1976). However, all Committee records shall be accessible to the public in accordance with the Freedom of Information Act.

Quorum: A majority of the Committee shall constitute a quorum. The Committee shall adopt all recommendations by resolution.

Organization: The Committee shall elect one of its members as chairperson and any other officers that it shall deem necessary.

Rules of procedure: The Committee shall adopt rules of order and procedure consistent with the provisions of this resolution.

Removal of members from office and filling vacancies: Members of the Committee may be removed from office by the appointing authority for inefficiency, neglect of duty or misfeasance or malfeasance after public hearing. Vacancies on the Committee shall be filled for the unexpired term by appointment from the appointing authority.

Relation to administrative branch: The Committee shall deal with the administrative branch of the City government solely through the City Manager and neither the Committee nor any member thereof shall give any order or direction either publicly or privately to any of the subordinates of the City Commission or City Manager. The City Manager is authorized to provide assistance to the Committee without further City Commission approval.

Expenses/Contract: The Committee shall not have any authority to authorize expenditures or otherwise obligate the City or incur expenses and/or approve contracts. Any expenditure shall be requested by resolution to the City Commission for consideration.

VOTE: Yeas, 7
Nays, None
Absent, None

I, Laura M. Pierce, City Clerk of the City of Birmingham, do hereby certify that the above is a true and correct copy of a resolution adopted by the Birmingham City Commission at their regular meeting of October 21, 2013.

Laura M Pierce

Laura M. Pierce
City Clerk

GREENWOOD CEMETERY

SHOWING CITY OF BIRMINGHAM NUMBERING SYSTEM

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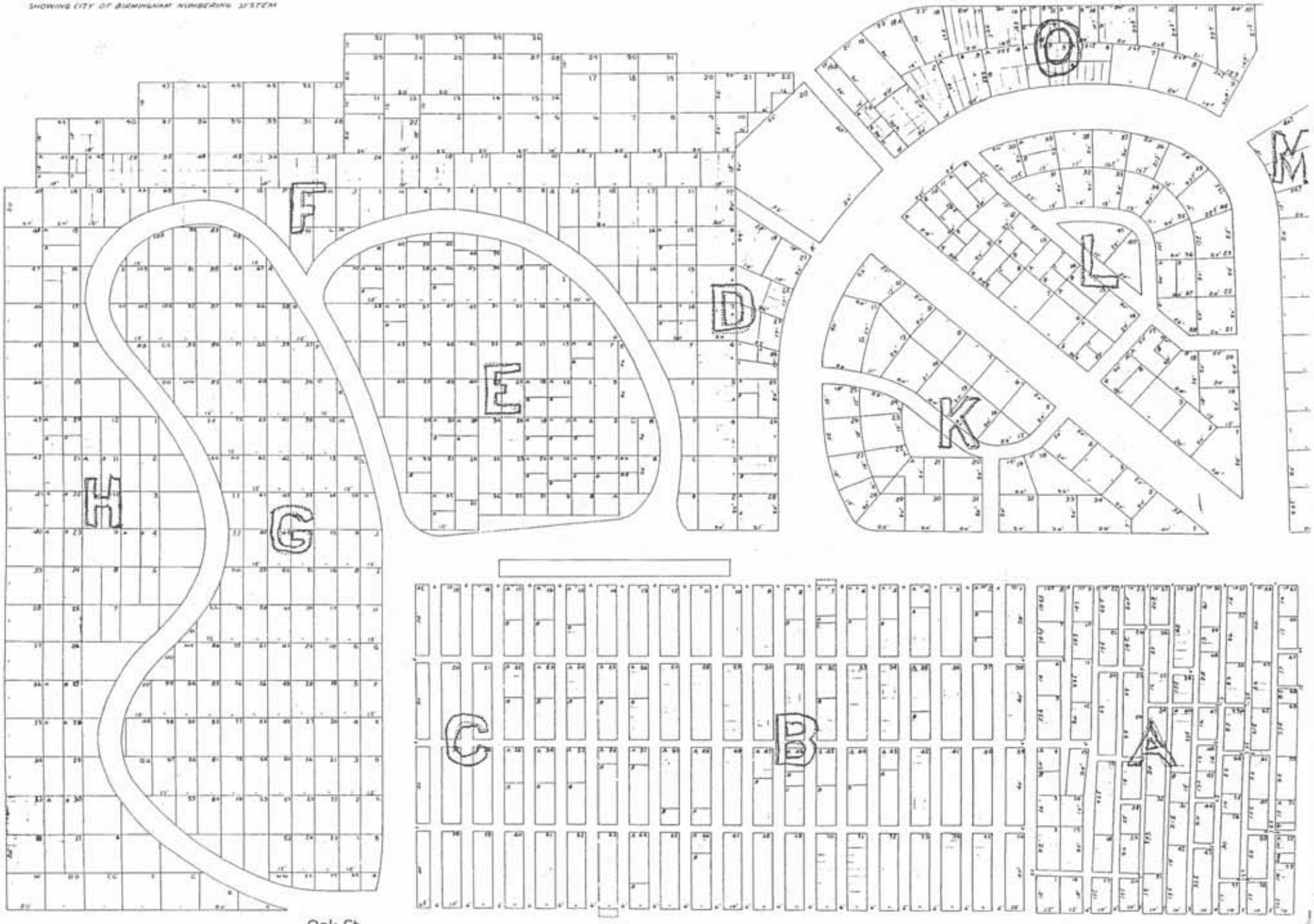

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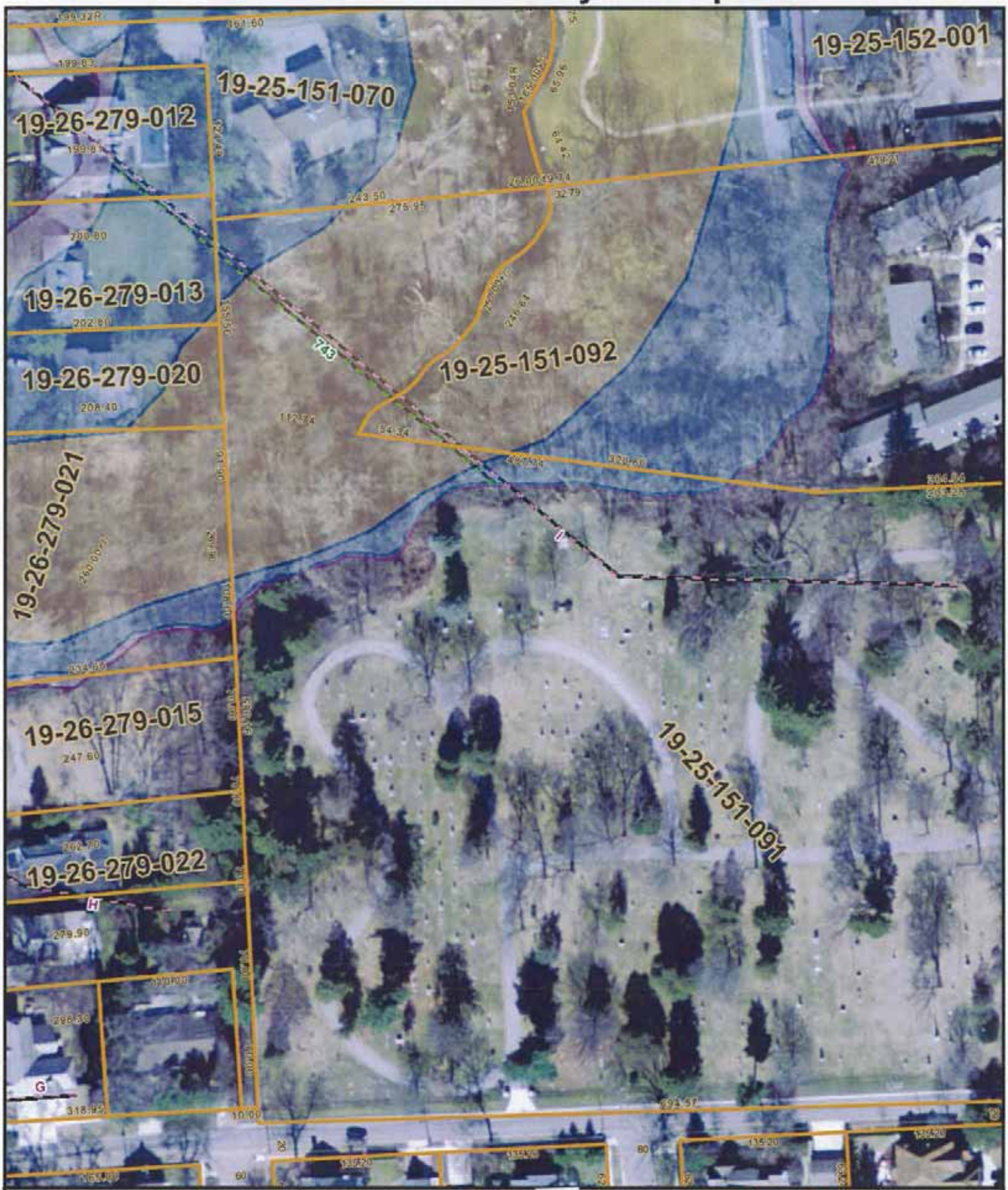
Greenwood Cemetery Floodplain



International Cemetery, Cremation and Funeral Association (ICCFA)

Model Guidelines for State Laws and Regulations

These guidelines are advisory in nature and set out general concepts rather than precise statutory language. The ICCFA is not recommending that the guidelines be codified into law as a whole. Instead, the guidelines are intended for consideration as a series of options to be selectively chosen by interested parties to address particular concerns.

Endowment Care Trust Funds

Developed in 1998 by the Government and Legal Affairs Task Force of the International Cemetery and Funeral Association

BACKGROUND

A cemetery endowment care trust fund is designed to ensure that income will always be available for the continued maintenance and upkeep of the cemetery, even when all the interment spaces are sold. The cemetery authority should not be permitted to withdraw the principal of the endowment care trust fund, but receives the income earned by the principal to offset maintenance expenses.

These endowment care trust funds often have two components: general care and special care. The income from the general care portion of the endowment care trust fund is used to maintain the entire cemetery based on priorities set by the cemetery authority. Special care is supplemental to or in excess of endowment care, and in accordance with the specific directions of any donor of funds for such purposes, might include care of a specific interment space, care of plantings in a designated area, maintenance of memorials, flower placements, and so on.

Determining an "adequate" level of maintenance for any cemetery is quite subjective. Because each cemetery is unique and has maintenance needs which vary over time, it is impractical to set general standards for maintenance. There are many variables that can contribute to changing maintenance needs of a cemetery, so each cemetery authority should have flexibility in setting priorities for expenditures.

It is common for a cemetery authority to subsidize maintenance costs from current income until the cemetery has sold most of its interment spaces. Because sales taper off, rather than ending abruptly, a cemetery can be "sold out" from a practical standpoint although it still has some interment spaces remaining to sell. When a cemetery is no longer active, its administrative and service costs will be lower, thereby reducing the operating expenses necessary to maintain the cemetery.

The cemetery authority of an endowment care cemetery should adopt a written policy which covers the investment philosophy, goals, responsibilities, and strategy for the way in which the endowment care trust funds are to be managed and invested.

The imposition of unreasonable investment restrictions may not provide adequate protection of purchasing power of the endowment care trust fund.

The trustee's duties and responsibilities concerning an endowment care trust fund should be detailed in the trust instrument. The investment management of assets held in the trust should be governed by the "Prudent Investor Rule," under the "Uniform Prudent Investor Act," which was developed by the National Conference of Commissioners on Uniform State Laws, to set general standards for trustees; to allow trustees flexibility in choosing investments; to specify that their work is to be judged on the basis of the performance of all their investments; and to allow them to delegate investment decisions.

PRINCIPLES

1. Income from the endowment care trust fund may be used for any administration and upkeep of the cemetery including, but not limited to, maintenance, repair, and replacement of landscaped areas, memorials, roads, walkways, walls, irrigation systems, buildings, and related overhead. It is the responsibility of the cemetery authority to determine the priorities for spending income from the endowment care trust fund.

2. Although a cemetery authority may subsidize the cost of maintaining the cemetery from current income, it should have no obligation to provide more care and maintenance than may be provided by the income from the endowment care trust fund.

3. Each cemetery authority should determine the proper level of funding for the endowment care trust fund to produce the income necessary for providing an adequate level of maintenance for that cemetery. There should be a statutory minimum established for the endowment care trust fund contribution. Special care contributions should be fully trusted at the amount received for that purpose.

4. The cemetery authority may be allowed to require contributions from memorial buyers to the endowment care trust fund, the income of which should be used for memorial care. These contributions should be assessed in a uniform and non-discriminatory manner regardless of which entity sells or installs the memorial.

5. Only the income of the endowment care trust fund should be paid toward the care of the cemetery. Income such as dividends, interest, and rents, as well as a portion of the capital gains, may be distributed after the deduction of expenses. All costs incurred with respect to the operation of the endowment care trust fund should be paid from the endowment care trust fund including, but not limited to, trustee fees, investment advisory fees, income taxes, administration, accounting, audit, regulatory fees, and surety bonds.

6. A cemetery authority investing the endowment care trust fund in equities may set aside a portion of the capital gains as a reserve for investment losses and a reserve for future maintenance, repair, or restoration of the cemetery or embellishments in the cemetery. The reserve for maintenance should not exceed a specified percentage of the total endowment care trust fund. The cemetery may withdraw funds from the maintenance

reserve as needed for the care of the cemetery.

7. A cemetery authority, or person designated by the cemetery authority, should be responsible for the performance of care and maintenance of the cemetery it owns and for services relating to the opening and closing of any interment space located in the cemetery.

8. Endowment care trust funds should be subject to an annual filing requirement. The cemetery authority should report to the regulatory authority amounts collected during the year, investments, income and expenses, and amounts paid to the cemetery authority for endowment care. Penalties should be imposed on the cemetery authority for failure to file in a timely manner.

9. Verification of the activities of the endowment care trust fund should be performed through periodic examination by the regulatory authority or the cemetery authority could submit an independent auditor's opinion.

10. Upon transfer of ownership of a cemetery, the selling party should certify that amounts allocated for the endowment care trust fund have been collected and deposited as required in the endowment care trust fund. If a deficiency is reported, the buying party should develop a plan for corrective action. The buying party should have no liability for endowment care trust fund shortages in reliance upon the selling party's certification of past compliance. Accordingly, the selling party should retain liability for any deficiencies in the endowment care trust fund that occurred during its period of ownership.

11. The cemetery authority should be allowed to adopt rules and regulations for the care and maintenance of the cemetery.

12. The "Prudent Investor Rule" should be adopted to govern how endowment care trust funds should be managed and invested.

13. The trustee, designated by the cemetery authority, should be a person, state or national bank, trust company, or federally insured savings and loan association, authorized to transact business in the state. The cemetery authority should have the ability to change the trustee.

14. The trustee should have the authority to commingle individual endowment care trust fund accounts into a master trust, maintaining separate records of corresponding allocations and divisions of assets, liabilities, income, and expenses.

15. An endowment care trust fund should not be invested in assets that are owned by the cemetery authority, nor in assets that are owned, directly or indirectly, by any directors, officers, employees, or relatives having beneficial interest in the cemetery authority.

INVESTMENT OF SURPLUS FUNDS OF POLITICAL SUBDIVISIONS
Act 20 of 1943

AN ACT relative to the investment of funds of public corporations of the state; and to validate certain investments.

History: 1943, Act 20, Imd. Eff. Mar. 13, 1943;—Am. 1988, Act 285, Imd. Eff. Aug. 1, 1988;—Am. 1997, Act 196, Imd. Eff. Dec. 30, 1997.

The People of the State of Michigan enact:

129.91 Investment of funds of public corporation; eligible depository; secured deposits; funds limitation on acceptable assets; pooling or coordinating funds; written agreements; investment in certificate of deposit; conditions; "financial institution" defined; additional definitions.

Sec. 1. (1) Except as provided in section 5, the governing body by resolution may authorize its investment officer to invest the funds of that public corporation in 1 or more of the following:

(a) Bonds, securities, and other obligations of the United States or an agency or instrumentality of the United States.

(b) Certificates of deposit, savings accounts, or depository receipts of a financial institution, but only if the financial institution complies with subsection (2); certificates of deposit obtained through a financial institution as provided in subsection (5); or deposit accounts of a financial institution as provided in subsection (6).

(c) Commercial paper rated at the time of purchase within the 2 highest classifications established by not less than 2 standard rating services and that matures not more than 270 days after the date of purchase.

(d) Repurchase agreements consisting of instruments listed in subdivision (a).

(e) Bankers' acceptances of United States banks.

(f) Obligations of this state or any of its political subdivisions that at the time of purchase are rated as investment grade by not less than 1 standard rating service.

(g) Mutual funds registered under the investment company act of 1940, 15 USC 80a-1 to 80a-64, with authority to purchase only investment vehicles that are legal for direct investment by a public corporation. However, a mutual fund is not disqualified as a permissible investment solely by reason of any of the following:

(*i*) The purchase of securities on a when-issued or delayed delivery basis.

(*ii*) The ability to lend portfolio securities as long as the mutual fund receives collateral at all times equal to at least 100% of the value of the securities loaned.

(*iii*) The limited ability to borrow and pledge a like portion of the portfolio's assets for temporary or emergency purposes.

(h) Obligations described in subdivisions (a) through (g) if purchased through an interlocal agreement under the urban cooperation act of 1967, 1967 (Ex Sess) PA 7, MCL 124.501 to 124.512.

(i) Investment pools organized under the surplus funds investment pool act, 1982 PA 367, MCL 129.111 to 129.118.

(j) The investment pools organized under the local government investment pool act, 1985 PA 121, MCL 129.141 to 129.150.

(2) Except as provided in subsection (5), a public corporation that invests its funds under subsection (1) shall not deposit or invest the funds in a financial institution that is not eligible to be a depository of funds belonging to this state under a law or rule of this state or the United States.

(3) Assets acceptable for pledging to secure deposits of public funds are limited to assets authorized for direct investment under subsection (1).

(4) The governing body by resolution may authorize its investment officer to enter into written agreements with other public corporations to pool or coordinate the funds to be invested under this section with the funds of other public corporations. Agreements allowed under this subsection shall include all of the following:

(a) The types of investments permitted to be purchased with pooled funds.

(b) The rights of members of the pool to withdraw funds from the pooled investments without penalty.

(c) The duration of the agreement and the requirement that the agreement shall not commence until at least 60 days after the public corporations entering the agreement give written notice to an existing local government investment pool which is organized under the local government investment pool act, 1985 PA 121, MCL 129.141 to 129.150, in those counties where such a pool is operating and accepting deposits on or before September 29, 2006.

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(d) The method by which the pool will be administered.

(e) The manner by which the public corporations will respond to liabilities incurred in conjunction with the administration of the pool.

(f) The manner in which strict accountability for all funds will be provided for, including an annual statement of all receipts and disbursements.

(g) The manner by which the public corporations will adhere to the requirements of section 5.

(5) In addition to the investments authorized under subsection (1), the governing body by resolution may authorize its investment officer to invest the funds of the public corporation in certificates of deposit in accordance with all of the following conditions:

(a) The funds are initially invested through a financial institution that is not ineligible to be a depository of surplus funds belonging to this state under section 6 of 1855 PA 105, MCL 21.146.

(b) The financial institution arranges for the investment of the funds in certificates of deposit in 1 or more insured depository institutions, as defined in 12 USC 1813, or 1 or more insured credit unions, as defined in 12 USC 1752, for the account of the public corporation.

(c) The full amount of the principal and any accrued interest of each certificate of deposit is insured by an agency of the United States.

(d) The financial institution acts as custodian for the public corporation with respect to each certificate of deposit.

(e) At the same time that the funds of the public corporation are deposited and the certificate or certificates of deposit are issued, the financial institution receives an amount of deposits from customers of other insured depository institutions or insured credit unions equal to or greater than the amount of the funds initially invested by the public corporation through the financial institution.

(6) In addition to the investments authorized under subsection (1), the governing body by resolution may authorize its investment officer to invest the funds of the public corporation in deposit accounts that meet all of the following conditions:

(a) The funds are initially deposited in a financial institution that is not ineligible to be a depository of surplus funds belonging to this state under section 6 of 1855 PA 105, MCL 21.146.

(b) The financial institution arranges for the deposit of the funds in deposit accounts in 1 or more insured depository institutions, as defined in 12 USC 1813, or 1 or more insured credit unions, as defined in 12 USC 1752, for the account of the public corporation.

(c) The full amount of the principal and any accrued interest of each deposit account is insured by an agency of the United States.

(d) The financial institution acts as custodian for the public corporation with respect to each deposit account.

(e) On the same date that the funds of the public corporation are deposited under subdivision (b), the financial institution receives an amount of deposits from customers of other insured depository institutions or insured credit unions equal to or greater than the amount of the funds initially deposited by the public corporation in the financial institution.

(7) A public corporation that initially invests its funds through a financial institution that maintains an office located in this state may invest the funds in certificates of deposit as provided under subsection (5).

(8) As used in this section, "financial institution" means a state or nationally chartered bank or a state or federally chartered savings and loan association, savings bank, or credit union whose deposits are insured by an agency of the United States government and that maintains a principal office or branch office located in this state under the laws of this state or the United States.

(9) As used in this act:

(a) "Governing body" means the legislative body, council, commission, board, or other body having legislative powers of a public corporation.

(b) "Funds" means the money of a public corporation, the investment of which is not otherwise subject to a public act of this state or bond authorizing ordinance or resolution of a public corporation that permits investment in fewer than all of the investment options listed in subsection (1) or imposes 1 or more conditions upon an investment in an option listed in subsection (1).

(c) "Investment officer" means the treasurer or other person designated by statute or charter of a public corporation to act as the investment officer. In the absence of a statutory or charter designation, the governing body of a public corporation shall designate the investment officer.

(d) "Public corporation" means a county, city, village, township, port district, drainage district, special assessment district, or metropolitan district of this state, or a board, commission, or another authority or agency created by or under an act of the legislature of this state.

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History: 1943, Act 20, Imd. Eff. Mar. 13, 1943;—CL 1948, 129.91;—Am. 1964, Act 126, Eff. Aug. 28, 1964;—Am. 1977, Act 66, Imd. Eff. July 20, 1977;—Am. 1978, Act 500, Imd. Eff. Dec. 11, 1978;—Am. 1979, Act 79, Imd. Eff. Aug. 1, 1979;—Am. 1982, Act 217, Imd. Eff. July 8, 1982;—Am. 1988, Act 239, Imd. Eff. July 11, 1988;—Am. 1997, Act 44, Imd. Eff. June 30, 1997;—Am. 1997, Act 196, Imd. Eff. Dec. 30, 1997;—Am. 2006, Act 400, Imd. Eff. Sept. 29, 2006;—Am. 2008, Act 308, Imd. Eff. Dec. 18, 2008;—Am. 2009, Act 21, Imd. Eff. May 5, 2009;—Am. 2012, Act 152, Imd. Eff. May 30, 2012.

129.92 Repealed. 1997, Act 196, Imd. Eff. Dec. 30, 1997.

Compiler's note: The repealed section pertained to investment of sinking funds and insurance moneys by school districts.

129.93 Existing investments ratified and validated.

Sec. 3. Investments made before the effective date of the amendatory act that repealed section 2 of the surplus funds, sinking funds, or insurance funds of a political subdivision of this state in bonds and other obligations of the United States or its instrumentalities or certificates of deposit or depository receipts of a bank that is a member of the federal deposit insurance corporation as provided under section 1 and former section 2 of this act are hereby ratified and validated.

History: 1943, Act 20, Imd. Eff. Mar. 13, 1943;—CL 1948, 129.93;—Am. 1964, Act 126, Eff. Aug. 28, 1964;—Am. 1997, Act 196, Imd. Eff. Dec. 30, 1997.

129.94 Funds accumulated under eligible deferred compensation plan; deposit; investment; existing investments ratified and validated.

Sec. 4. (1) As used in this section:

(a) "Eligible deferred compensation plan" means a deferred compensation plan established and maintained by a governing body, which plan meets the requirements of section 457 of the internal revenue code.

(b) "Financial institution" means a state or nationally chartered bank, a state or federally chartered savings bank, a state or federally chartered savings and loan association, or a state or federally chartered credit union, which financial institution is insured by an agency or instrumentality of the federal government.

(c) "Governing body" means the legislative or governing body of a county, city, village, township, or special assessment district, or an agency, board, or commission of a county, city, village, or township.

(2) The governing body, by resolution, may authorize its treasurer or chief fiscal officer to deposit funds received under an eligible deferred compensation plan in a financial institution authorized by law to do business in this state or with an authorized deferred compensation agent appointed by the governing body. Notwithstanding any other provision of this act, the treasurer or chief fiscal officer, as authorized by resolution of the governing body, may place funds accumulated under an eligible deferred compensation plan with a financial institution authorized to do business in this state, a state or federally licensed investment company or insurance company authorized to do business in this state, or trust established by public employers for the commingled investment of the amounts held under deferred compensation and retirement plans, which funds shall be invested by the financial institution, insurance company, investment company, or trust as directed by the governing body. The investment of eligible deferred compensation plan funds shall be in the manner and for the purposes described in section 457 of the internal revenue code.

(3) The investment of funds accumulated under an eligible deferred compensation plan of a governing body prior to the effective date of the amendatory act that added this section, which investments otherwise meet the requirements of this section, are ratified and validated.

History: Add. 1988, Act 285, Imd. Eff. Aug. 1, 1988.

129.95 Investment policy; adoption by governing body.

Sec. 5. (1) Not more than 180 days after the end of a public corporation's first fiscal year that ends after the effective date of the amendatory act that repealed section 2, a governing body, in consultation with the investment officer, shall adopt an investment policy that, at a minimum, includes all of the following:

(a) A statement of the purpose, scope, and objectives of the policy, including safety, diversification, liquidity, and return on investment.

(b) A delegation of authority to make investments.

(c) A list of authorized investment instruments. If the policy authorizes an investment in mutual funds, it shall indicate whether the authorization is limited to securities whose intention is to maintain a net asset value of $1.00 per share or also includes securities whose net asset value per share may fluctuate on a periodic basis.

(d) A statement concerning safekeeping, custody, and prudence.

(2) A governing body that as of the effective date of the amendatory act that repealed section 2 has adopted an investment policy that substantially complies with the minimum requirements under subsection (1) is not in violation of this section as long as that policy remains in effect.

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History: Add. 1997, Act 196, Imd. Eff. Dec. 30, 1997.

129.96 Execution of order to purchase or trade funds of public corporation; providing copy of investment policy; public corporation subject to subsection (1); report.

Sec. 6. (1) Subject to subsection (2), before executing an order to purchase or trade the funds of a public corporation, a financial intermediary, broker, or dealer shall be provided with a copy of the public corporation's investment policy and shall do both of the following:

(a) Acknowledge receipt of the investment policy.

(b) Agree to comply with the terms of the investment policy regarding the buying or selling of securities.

(2) A public corporation is subject to subsection (1) beginning on the date that the investment policy of a public corporation takes effect or 180 days after the end of the public corporation's first fiscal year ending after the effective date of the amendatory act that repealed section 2, whichever is earlier.

(3) The investment officer shall provide quarterly a written report to the governing body concerning the investment of the funds.

History: Add. 1997, Act 196, Imd. Eff. Dec. 30, 1997;—Am. 2007, Act 213, Imd. Eff. Dec. 27, 2007.

129.97 Long-term or perpetual trust fund; investment of assets; resolution authorizing investment officer same authority as investment fiduciary under MCL 38.1132 to 38.1140m; conditions.

Sec. 7. Notwithstanding any law or charter provision to the contrary, if a public corporation has a long-term or perpetual trust fund consisting of money and royalties or money derived from oil and gas exploration on property or mineral rights owned by the public corporation, the governing body of the public corporation may by resolution provide its investment officer with the same authority to invest the assets of the long-term or perpetual trust fund as is granted an investment fiduciary under the public employee retirement system investment act, 1965 PA 314, MCL 38.1132 to 38.1140m.

History: Add. 2008, Act 220, Imd. Eff. July 16, 2008.

129.97a Investment of assets of special revenue fund by investment officer; resolution granting authority; annual special revenue fund report.

Sec. 7a. (1) Notwithstanding any law or charter to the contrary, if a public corporation has a special revenue fund consisting of payments for park operations and maintenance, the governing body of the public corporation may by resolution provide its investment officer with the same authority to invest the assets of the special revenue fund as is granted an investment fiduciary under the public employee retirement system investment act, 1965 PA 314, MCL 38.1132 to 38.1140m.

(2) The investment officer shall prepare and issue an annual special revenue fund report. The investment officer shall make the annual special revenue fund report available to the citizens of the public corporation. The annual special revenue fund report shall include all of the following:

(a) The name of the special revenue fund.

(b) The special revenue fund's investment fiduciaries.

(c) The special revenue fund's assets and liabilities.

(d) The special revenue fund's funded ratio.

(e) The special revenue fund's investment performance.

(f) The special revenue fund's expenses.

History: Add. 2008, Act 404, Imd. Eff. Jan. 6, 2009.

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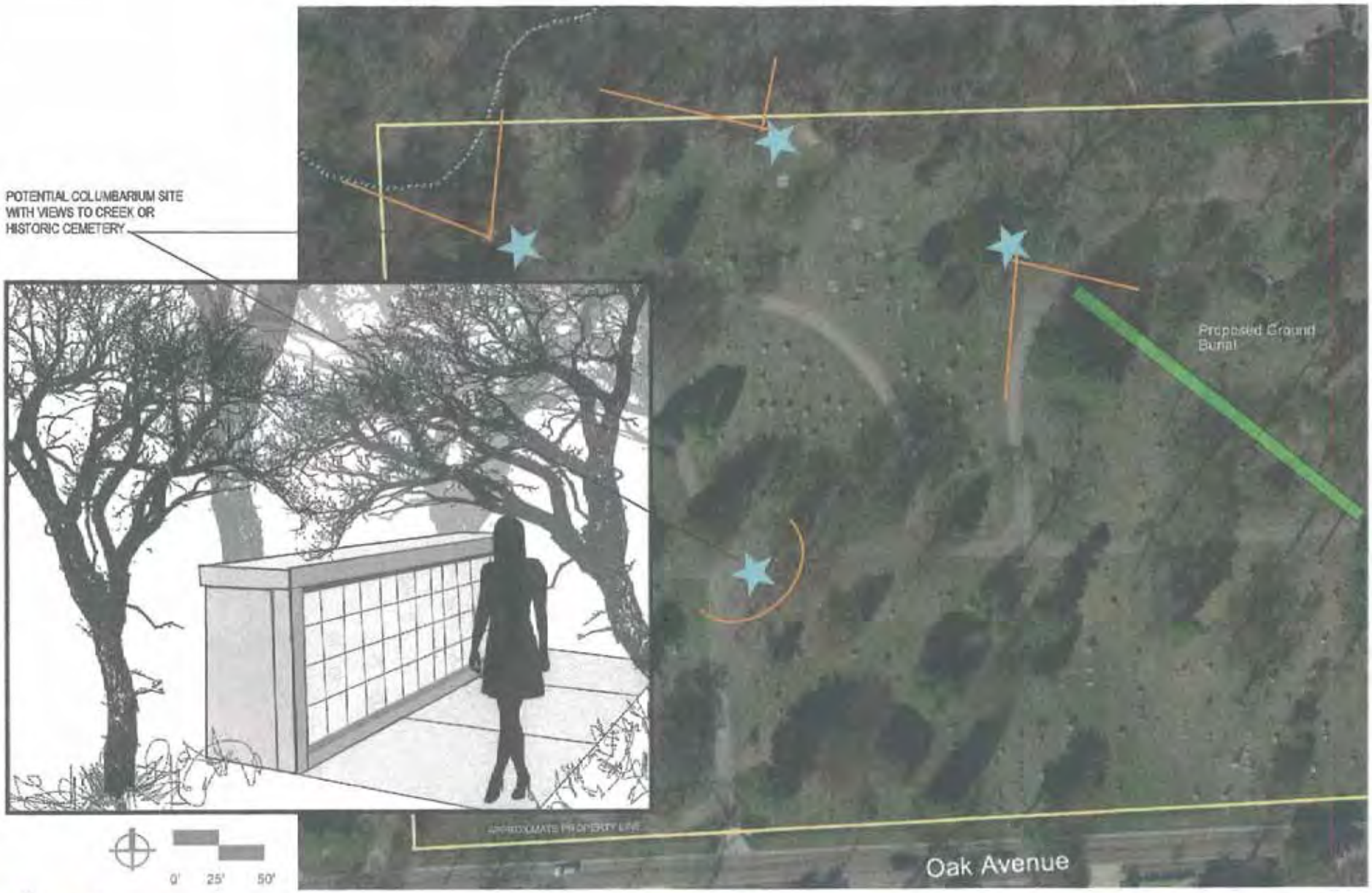

Mannik Smith GROUP

Greenwood Cemetery

Columbarium Conc

SAUGATUCK TOWNSHIP BOARD

RESOLUTION NO. 2009-02

RESOLUTION TO RECLAIM AND FORFEIT NEGLECTED CEMETERY BURIAI SPACE WITHIN RIVERSIDE AND DOUGLAS CEMETERIES

WHEREAS, pursuant to Chapter 12 of the Township Code of Ordinances (Cemetery Ordinance), and MCL 128.11 et seq., the Saugatuck Township Board (Township) is responsibl for the public cemeteries, commonly referred to as Riverside and Douglas Cemeteries, in the Township of Saugatuck, County of Allegan, State of Michigan; and

WHEREAS, under the provisions of MCL 128.11 et seq., the Township is authorized t determine that owners of cemetery certificates for interment rights and interests for burial spac in above mentioned cemeteries have failed or neglected for a period of seven (7) years or more care for and maintain such spaces in accordance with the rules and regulations relating thereto; and may institute proceedings for the termination and forfeiture of the certificate owner's right and interests for burial spaces in both cemeteries; and

WHEREAS, the Township recognizes that all rights and interests of the named burial spaces of the named certificates of the attached document "Exhibit A" for Riverside and Douglas Cemeteries are subject to termination and forfeiture pursuant to MCL 128.11 et seq.; and

WHEREAS, the owners of certificates of rights and interests of the burial spaces name in "Exhibit A" have had no recorded interment(s), correspondence, or transfer(s) as defined by the Cemetery Ordinance for at least 50 years from the dated signature of this resolution; and

WHEREAS, the Township, acting as a Cemetery Board under the authority of MCL 128.11 et seq., has determined the owner(s) of the rights and interests of the burial spaces of th named certificates of "Exhibit A" have failed or neglected to care for and maintain the same burial spaces of the same certificates for a period of 7 years or more in accordance with the rul and regulations relating thereto; and

THEREFORE BE IT RESOLVED, the Township acting as a Cemetery Board has made the abovementioned determination and is instituting proceedings for the termination and forfeiture of rights and interests of the named burial spaces of the named cemetery certificates "Exhibit A" of the Riverside and Douglas Cemeteries; and

A certified copy of this resolution shall be served to the owner(s) of the rights and interests of the named burial spaces of the named certificates of "Exhibit A" by means of publication in a generally circulated newspaper in Saugatuck Township, Allegan County, State of Michigan pursuant to MCL 128.11 et seq. and Michigan Law.

"Exhibit B"

CERTIFICATE

1. Jane Wright, the Clerk for Saugatuck Township, Allegan County, Michigan do hereby certify that Resolution #2009-02 to reclaim and forfeit neglected cemetery burial space was adopted at a regular meeting of the township board held on June 3, 2009.

   The following members of the township board were present at the meeting:

   Wright, Knikelbine, Roerig, and Hanson.

   The following members were absent:

   Wester.

   The resolution was adopted by the township board with members Wright, Knikelbine, Roerig, and Hanson voting in favor and members of the board None voting in opposition.

   The resolution declared adopted.

Jane Wright, Clerk
Saugatuck Township

ORDER FOR SUBSTITUTE SERVICE BY PUBLICATION

At a session of Court, held in the Courtroom in the Courthouse in the City of Allegan, Allegan County, Michigan, on the 27th day of July, 2009.

PRESENT: KEVIN CRONIN

The Court has reviewed Saugatuck Township's Petition and the Verified Motion for Substitute Service in this matter, the Court having considered the Petition and the Verified Motion for Substitute Service, and the court being fully advised in the premises;

The Court finds that despite diligent effort, Saugatuck Township has been unable to obtain current addresses for any and all owners of cemetery certificates of rights and interests of unused burial spaces in Riverside and Douglas Cemeteries listed on the attached "Exhibit A"; and that the best method of serving the notices required under MCL 128.11 et seq. (Act), is the publication of such notices and subsequent documents, pursuant to MCR 2.106 in the Commercial Record newspaper.

IT IS, THEREFORE, ORDERED that Saugatuck Township Board Resolution# 2009-02 (Resolution) required by the Act, in lieu of personal service or service by registered mail to the last known address, may be served by publication upon the owners of cemetery certificates for all rights and interests of the unused burial spaces for whom the Township has no current address nor any knowledge of the whereabouts listed on "Exhibit A."

IT IS FURTHER ORDERED, that all documents and notices subsequent to the proceedings instituted by the Resolution and required by the Act to be served upon the owners listed on "Exhibit A" for whom the Township have no addresses, nor any knowledge of the whereabouts, may be served by publication in the Commercial Record, being a newspaper of general circulation in the Township of Saugatuck, County of Allegan, State of Michigan.

ATTEST. A TRUE COPY
Jackie Porter
DEPUTY CLERK

KEVIN CRONIN
Hon.

STATE OF MICHIGAN)
) §
COUNTY OF ALLEGAN)

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF ALLEGAN

IN THE MATTER OF CERTAIN UNUSED BURIAL SPACES IN RIVERSIDE AND DOUGLAS CEMETERIES, TOWNSHIP OF SAUGATUCK, MICHIGAN	File No. 09- 45290- CZ Hon. KEVIN CRONIN

MICHAEL P. HADDOCK (P55880)
NICHOLAS A. REISTER (P69324)
Sheridan Haddock PLLC
Attorneys for Saugatuck Township
62 Center Street, PO Box 187
Douglas, Michigan 49406
(269) 857-2119

SUPPLEMENTAL
ORDER FOR SUBSTITUTE SERVICE BY PUBLICATION

At a session of Court, held in the Courtroom in the Courthouse in the City of Allegan, Allegan County, Michigan, on the 31st day of July, 2009.

PRESENT: KEVIN CRONIN

The Court has reviewed Saugatuck Township's Petition and the Verified Motion for Substitute Service in this matter, the Court having considered the Petition and the Verified Motion for Substitute Service, and the court being fully advised in the premises;

The Court finds that despite diligent effort, Saugatuck Township has been unable to obtain current addresses for any and all owners of cemetery certificates of rights and interests of unused burial spaces in Riverside and Douglas Cemeteries listed on the attached "Exhibit A"; and that the best method of serving the notices required under MCL 128.11 et seq. (Act), is the publication of such notices and subsequent documents, pursuant to MCR 2.106 in the Commercial Record newspaper.

IT IS, THEREFORE, ORDERED that Saugatuck Township Board Resolution# 2009-02 (Resolution) required by the Act, in lieu of personal service or service by registered mail to the last known address, may be served by publication upon the owners of cemetery certificates for

all rights and interests of the unused burial spaces for whom the Township has no current address nor any knowledge of the whereabouts listed on "Exhibit A."

IT IS FURTHER ORDERED, that all documents and notices subsequent to the proceedings instituted by the Resolution and required by the Act to be served upon the owners listed on "Exhibit A" for whom the Township have no addresses, nor any knowledge of the whereabouts, may be served by publication in the Commercial Record, being a newspaper of general circulation in the Township of Saugatuck, County of Allegan, State of Michigan.

IT IS FURTHER SUPPLEMENTED AND ORDERED, that the Order for Substitute Service By Publication, Petition, Exhibits, and Notice of Hearing be posted at a minimum of five (5) locations, including at all entrances to both cemeteries and at any central cemetery building or office on the cemetery premises, and near the door of the Saugatuck Township Offices if acting as the cemetery office. Such postings shall be posted for twenty-eight (28) days.

KEVIN CRONIN

Hon. Kevin Cronin

ATTEST. A TRUE COPY

Jackie Porter

DEPUTY CLERK

Approved, SCAO

Original - Court
1st copy - Defendant

2nd copy - Plaintiff
3rd copy - Return

STATE OF MICHIGAN JUDICIAL DISTRICT 48th JUDICIAL CIRCUIT COUNTY PROBATE	SUMMONS AND COMPLAINT KEVIN CRONIN	CASE NO. 09-45240 CZ

Court address 113 Chestnut Street, Allegan, MI 49010

Court telephone no. (269)673-0300

Plaintiff's name(s), address(es), and telephone no(s).		Defendant's name(s), address(es), and telephone no(s).
SAUGATUCK TOWNSHIP	v	IN THE MATTER OF CERTAIN UNUSED BURIAL SPACES IN RIVERSIDE AND DOUGLAS CEMETERIES, TOWNSHIP OF SAUGATUCK, MICHIGAN
Plaintiff's attorney, bar no., address, and telephone no. MICHAEL P. HADDOCK (P55880) NICHOLAS A. REISTER (P69324) SHERIDAN HADDOCK PLLC (269) 857-2119 62 Center St., POB 187, Douglas, MI 49406		

SUMMONS **NOTICE TO THE DEFENDANT:** In the name of the people of the State of Michigan you are notified:

1. You are being sued.
2. **YOU HAVE 21 DAYS** after receiving this summons to file a written answer with the court and serve a copy on the other party or take other lawful action with the court (28 days if you were served by mail or you were served outside this state). (MCR 2.111(C))
3. If you do not answer or take other action within the time allowed, judgment may be entered against you for the relief demanded in the complaint.

Issued	This summons expires	Court clerk
7-22-09	10-20-09	Joyce A. Watts

*This summons is invalid unless served on or before its expiration date.

This document must be sealed by the seal of the court.

COMPLAINT *Instruction: The following is information that is required to be in the caption of every complaint and is to be completed by the plaintiff. Actual allegations and the claim for relief must be stated on additional complaint pages and attached to this form.*

Family Division Cases

☐ There is no other pending or resolved action within the jurisdiction of the family division of circuit court involving the family or family members of the parties.

☐ An action within the jurisdiction of the family division of the circuit court involving the family or family members of the parties has been previously filed in _____ Court.

The action ☐ remains ☐ is no longer pending. The docket number and the judge assigned to the action are:

Docket no.	Judge	Bar no.

General Civil Cases

☒ There is no other pending or resolved civil action arising out of the same transaction or occurrence as alleged in the complaint.

☐ A civil action between these parties or other parties arising out of the transaction or occurrence alleged in the complaint has been previously filed in _____ Court.

The action ☐ remains ☐ is no longer pending. The docket number and the judge assigned to the action are:

Docket no.	Judge	Bar no.

VENUE

Plaintiff(s) residence (include city, township, or village)	Defendant(s) residence (include city, township, or village)
Saugatuck Township	Saugatuck Township
Place where action arose or business conducted: Allegan County, Michigan	

July 22, 2009
Date

Signature of attorney/plaintiff: Michael P. Haddock (P55880) Fax MPH (P69324)

If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you fully participate in court proceedings, please contact the court immediately to make arrangements.

MC 01 (3/08) SUMMONS AND COMPLAINT MCR 2.102(MCR 2.104, MCR 2.105, MCR 2.107, MCR 2.113(C)(2)(a), (b), MCR 3.206(A)

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF ALLEGAN

IN THE MATTER OF CERTAIN UNUSED BURIAL SPACES IN RIVERSIDE AND DOUGLAS CEMETERIES, TOWNSHIP OF SAUGATUCK, MICHIGAN	File No. 09- 45290 CZ Hon. KEVIN W. CRONIN

MICHAEL P. HADDOCK (P55880)
NICHOLAS A. REISTER (P69324)
Sheridan Haddock, PLLC
Attorneys for Saugatuck Township
62 Center Street, PO Box 187
Douglas, Michigan 49406
(269) 857-2119

NOTICE OF HEARING

PLEASE TAKE NOTICE that the Saugatuck Township Board has petitioned the Circuit Court for the County of Allegan, State of Michigan, to order that all rights and interests in certain unused burial spaces of certain cemetery certificates in Riverside and Douglas cemeteries in the Township of Saugatuck, County of Allegan, State of Michigan, be determined and forfeited. Such certificates of rights and interest of burial spaces that are designated in the Petition have had no interment, transfer, or correspondence of record for more than fifty (50) years.

All named owners of the certificates of rights and interests for the named burial spaces hereafter are therefore NOTIFIED:

PLEASE TAKE NOTICE that on **Friday, the 11th day of September, 2009, at 10:00 a.m.**, the undersigned will appear in the Circuit Courtroom of the Honorable Kevin W. Cronin at the Allegan County Courthouse, 113 Chestnut Street, City of Allegan, Allegan County, Michigan and ask the Court to grant such PETITION, at which time and place you may appear and be heard.

Named owners of the certificates of rights and interests of the named burial spaces as designated on the Petition are as follows:

"EXHIBIT A"

Dated: July 27, 2009

Aaron Sheridan
Saugatuck Township Cemetery Sexton

Dated: July 27, 2009

SHERIDAN HADDOCK PLLC

Michael P. Haddock (P55880)

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF ALLEGAN

IN THE MATTER OF CERTAIN UNUSED BURIAL SPACES IN RIVERSIDE AND DOUGLAS CEMETERIES, TOWNSHIP OF SAUGATUCK, MICHIGAN	File No. 09-45290 CZ Hon. Kevin Cronin

MICHAEL P. HADDOCK (P55880)
NICHOLAS A. REISTER (P69324)
Sheridan Haddock PLLC
Attorneys for Saugatuck Township
62 Center Street, PO Box 187
Douglas, Michigan 49406
(269) 857-2119

ALLEGAN COUNTY FILED SEP 11 2009 DEPUTY CLERK

ORDER

At a session of Court, held in the Courtroom in the Courthouse in the City of Allegan, Allegan County, Michigan, on the 11 day of September, 2009.

PRESENT: HON. KEVIN CRONIN

The Court has reviewed Saugatuck Township's Petition for the termination and forfeiture of the rights and interests of owners of cemetery certificates of burial spaces and the Court having heard testimony and arguments of counsel and being fully advised in the premises; the Court finds that the owner or owners of the cemetery certificates for all rights and interests of the burial spaces listed on "Exhibit A" in Riverside and Douglas Cemeteries in Saugatuck Township, County of Allegan, State of Michigan:

RECEIVED 48TH CIRCUIT COURT 2009 SEP 11 AM 10:59

"Exhibit A"

have failed and neglected for a period of seven (7) years or more to care for and maintain such space or spaces in accordance with the laws, rules and regulations relating thereto in providing such care and maintenance; it is, therefore,

ORDERED that the rights and interests of the owners of the burial spaces listed on "Exhibit A" are hereby forfeited and terminated;

IT IS FURTHER ORDERED that a copy of this order shall be served within 10 days after entering thereof on the owners of the listed burial spaces by publication in accordance with the Order of the Court and Michigan Law.

IT IS FURTHER ORDERED that the owners of said cemetery certificates of rights and interests of burial spaces listed on "Exhibit A" shall have a period of sixty (60) days from the date hereof in which to redeem the right or interest in such cemetery certificates for such burial spaces by paying Saugatuck Township $15.00 for its costs incurred in these proceedings, and by complying with the rules and regulations providing for care and maintenance of such burial spaces or by making provisions for such compliance;

IT IS FURTHER ORDERED that, if at any time before the expiration of such sixty (60) day period, the owner has so redeemed the rights or interests, an order shall be made and entered setting aside the previous order of termination and forfeiture as to said cemetery certificates of burial spaces;

IT IS FURTHER ORDERED that Saugatuck Township shall keep an accurate account of all expenses incurred by it, in that after the expiration of sixty (60) days from the date of this Order, the owners of said cemetery certificates of rights and interests for burial spaces shall have not redeemed their rights or interest, Saugatuck Township is authorized and empowered to maintain and care for said burial spaces and shall keep an accurate and detailed account of all money expended for such purpose;

IT IS FURTHER ORDERED that, if at any time during the period of two (2) years from and after the date of the entry of this Order, the owner of any certificates of rights and interests for any burial spaces listed on "Exhibit A" shall be entitled to a reconveyance to said owner or owners by Saugatuck Township upon the payment of the costs incurred in this proceeding of $15.00, the cost of the care and maintenance of such space or spaces incurred by Saugatuck Township, and by complying with the rules and regulations provided for the maintenance of such spaces or by making provisions of such compliance.

IT IS FURTHER ORDERED that all rights of a certificate owner shall be terminated if the owner has not redeemed within two (2) years from the entry of this Order.

IT IS FURTHER ORDERED that, if such reconveyance is not sought and obtained during said two (2) year period, then Saugatuck Township shall be authorized and empowered to offer such rights and interests of burial spaces for sale, in accordance with the rules and regulations of the Saugatuck Township Cemetery Ordinance.

Hon. Kevin Cronin
Circuit Court Judge

I HEREBY CERTIFY THIS TO BE A TRUE
AND CORRECT COPY OF THIS DOCUMENT
NOW ON FILE IN THIS OFFICE THIS
13th Day of March 2014
JOYCE A. WATTS, CLERK, CIRCUIT COURT
ALLEGAN COUNTY, MICHIGAN
BY
DEPUTY CLERK

EXHIBIT A

RIVERSIDE CEMETERY

BLOCK	RANGE	LOT	BURIAL SPACE#	CERTIFICATE F.NAME	CERTIFICATE L.NAME
01	007	004	2	L.	ANSON
06	019	015	1,2	ALTA	ARENDS
03	014	001	1,2,3,4,5,6	JAMES H.	BANDLE
05	019	004	1	CHARLES E.	BANKS
05	017	002	2	GEORGE	BEAUMONT
05	019	008	1,3	MRS. ALVIN	BEDFORD
08	027	011	5,6	PHILLIP L.	BEHRENS
05	019	006	1	URSALA	BENDER
07	025	006	5,6	IRENE	BENSON
[illegible]	001	003	1,2	KLASS J.	BLINK
01	005	006	4,5,6	LEMUEL	BROWN
01	008	005	4	WILLIS	BRUSH
08	027	013	4,5,6	EDWIN	BULSON
04	015	009	2.3,4,5,6	A.E.	BURGESS
05	019	005	1	SUSAN	BUTLER
05	017	003	1,2,3.4,6	R. B.	CARROLL
02	006	017	4,5,6	SAMUEL	CARVER
02	002	017	1,2, 5	CIVILIAN M.	COOK
07	026	006	4,5,6	W.C.	CRAINE
06	023	012	5,6	GEORGE	CUMMINGS
06	021	010	4	CHARLES	DAVIS
08	027	017	3	MRS. ROBERT	DEMPSTER
03	015	004	1.3,4,5,6	J.W.	DICKEY
04	011	009	1,2,3,4,5,6	HARVEY	DOAN
04	010	009	3,4,5,6	GEORGE E.	DUNN
[illegible]	017	008	4	E. E.	ELDRIDGE
02	005	010	6	JAMES	ELLIOTT
01	007	007	2	MARTHA	ELLIS
01	006	004	2	SARAH A.	FORBES
05	016	007	6	JULIA	FRANCIS
06	017	019	2	DAVID	FRANCIS
03	013	002	1	MRS.	FREELAND
06	021	019	5,6	HENRY	FURBERG
6	016	012	1,2,3,4,5,6	JUDSON	GOND
06	021	013	2	F. W.	GRANT
01	005	007	6	J.	GRAVLIN
02	007	012	1,2,4,5,6	FRITZ	GREINER
08	030	015	4	MRS. EDNA	GRIEBAHN
02	008	019	5,6	MRS. PHOBE	HALL
02	005	018	1,5	H.	HALVERSON

04	013	012	2,5,6	CHARLES	HAMES
07	026	002	2,3,4	DENNIS	HAMMER
04	013	019	5,6	PHILIPP	HANCOCK
01	00F	004	4	CHESTER	HANSEN
01	006	008	3,4	H.	HANSON
08	027	017	6	MRS. THOMAS	HARRINGTON
05	017	007	1,6	MRS. JACOB	HAUB
06	017	011	5,6	CHARLES	HAYWARD
08	028	016	3	ANNA	HEINZE
02	006	016	1,3,4,5,6	MAT	HELBAH
06	020	017	2	WILLIAM H.	HENDRIXSON
02	006	018	2,4	S.A.	HEWITT
01	008	005	5,6	A.R.	HILL
01	008	002	2	HENRY	HOPKINS
[illegible]	003	014	1,4,5,6	EDWARD	HOUSE
03	009	007	1	CHARLES	JACKSON
08	028	015	2,3	NORMA BLAINE	JELEN
03	013	002	1,4,5,6	S.H.	JOHNS
02	007	009	1,3,5,6	SAMUEL	JOHNSON
08	026	015	1,4	GEBHARDT	JOHNSON
04	009	014	2,3,4,5,6		JOSLYN - RICE
02	007	011	4,6	JOHN	KENTER
04	010	018	1,2,4,5	R.F.	KLEEMAN
06	016	010	1,5,6	F	KLEEMAN
04	012	014	1,2,3	GEORGE	KNOWLTON
04	014	018	1,2,3,4,6	MARY	KOLLARD
06	020	013	3	D. T.	LAMB
03	010	006	1,3,4,5,6	CHARLES G.	LUDLOW
05	017	008	3	HERMAN	LUNDGREN
04	014	009	3,4,5,6	CHRISTIAN	M ILLER
[illegible]	020	020	1,4,5,6	W.H.	MANNING
06	023	015	1,2,5,6	WILLIAM E.	MARTIN
01	007	007	3,4	FRANK	MARTY
01	008	005	2	JOHNSON	MAYO
05	022	005	1,2,3,4	JOSEPH	MC GONAGAL
04	009	012	4,5,6	JAMES	MC MANN
08	026	011	4	C.S.	METHVEN
04	011	013	3,4,5,6	JOHN	MEYERS
06	017	010	1,3,5,6	JOHANNA	MILLER
08	025	015	1	MISS DEE	MILLS
08	026	018	1,2,3,4,5,6	R.L.	MUCKLEY
2	004	014	1,5,6	EUGENE	OWEN
01	007	006	6	C.E.	PERCIVAL
01	001	006	2,3,4,5,6	HIRAM	PERKINS
04	015	014	6	GEORGE	PHELPS

06	017	016	3,4,5	SARAH	PHELPS
05	018	007	4,5	GEORGE W.	PIERCE
06	021	011	1,4,6	ALBERT H.	PIERCE
07	028	003	5,6	BESSIE	PLAIN
05	019	009	1	J. M.	POND
01	008	006	4,6	HENRY	PORTER
06	021	013	6	ROY	RAND
06	020	010	5,6	O.C.	REED
07	025	007	1,4.5.6	CLARK S.	REED
08	028	015	6	MRS. A.F.	REHBERG
02	004	017	1,2	RICHARD	ROCHE
04	011	010	2	BESSIE	SAMUELSON
04	015	015	1,3,4,5,6	JOHN	SANDERS
08	025	019	1,2,3,4,5,6	JOHN A.	SCARLETT
[illegible]	020	007	4	ANDREW	SCHUMAN
03	00M	006	1,2,3,6	ALEXANDER Y.	SIMPSON
03	009	004	1,3,4,5,6	JAMES	SMITH
04	014	019	1,2,3,5,6	A.R.	SMITH
06	020	014	2,3	LOUIS	SMITH
04	010	016	6	ALYS	SPRINGER
04	014	015	1,2,3,4,5,6	R.S.	STEVENS
02	008	015	1,4,5,6	F.H.	STICKNEY
06	022	016	1,5,6	MRS. ALEX	THOMPSON
08	029	013	1,2,3,5,6	MARGUERITE	THORBY
02	006	019	6	WALTER M.	TITUS
05	016	002	3	ADDIE	TRACY
08	025	019	4	GEORGE K.	TRASK
08	026	020	1,2,3	GEORGE K.	TRASK
02	003	011	2,3,4	CHARLES	VAN NOSTRAND
03	009	007	4,5,6	DR. J.	VANDERVEN
[illegible]	023	013	1,3,4,5,6	GARRET	VREELAND
05	018	009	4,5,6	WILLIAM H.	WARD
06	020	017	3,5	MARGARET	WELLS
06	024	010	3,4,5,6	CHARLES F.	WHITCOMB
08	029	019	6	WALTER S.	WRENN

DOUGLAS CEMETERY

BLOCK	RANGE	LOT	BURIAL SPACE	CERTIFICATE F.NAME	CERTIFICATE L.NAME
N/A	06W	002	2		BAIN & MINTER
N/A	04W	016	3,4,5		BRODOCK
N/A	04W	015	3,4,5		BRODOCK
N/A	02E	010	3	WASHINGTON	BRUNER
N/A	04E	003	2	JOHN	BRUNSON
N/A	02E	004	4		BUCHANNAN
N/A	02E	022	5		CAMPBELL

N/A	04E	019	3,4,5	JOHN	CAMPBELL
N/A	05E	019	3,4	DAVID	CAMPBELL
N/A	03W	001	4,5		CAMPBELL
N/A	01W	015	3,5		CLOSE
N/A	02W	026	3,4,5	H.	COUSINS
N/A	04W	021	5	ELIZABETH	CURREN
N/A	05W	003	3,4,5	ADOLPH	DREHER
N/A	03E	003	4,5	GEORGE L.	DUTCHER
N/A	03E	004	1,2,3,4,5	GEORGE L.	DUTCHER
N/A	02E	027	1,3,4	NATHAN	ELLIS
N/A	02E	28	3,4,5	NATHAN	ELLIS
N/A	02E	016	5	N.	FINLEY
N/A	03W	014	5	NOAH	FLINT
N/A	05W	006	1,3,4	MRS. SARAH	FLINT
[illegible]	04W	020	3,4,5		FOLEY
N/A	04W	019	1,2,4,5		FOLEY
N/A	02W	003	2,3,4,5	JAKE	FOX
N/A	02E	013	2		GAZE
N/A	05W	001	3,4	CLARK	GILLESPIE
N/A	05E	003	2		GLEASON
N/A	03W	013	3	MRS. G. F.	GORING
N/A	03W	009	2,5	CHARLES R.	GREEN
N/A	03W	010	3,4,5	HENRY	GREEN
N/A	06E	003	2,3	MRS.LEWIS	HAMMOND
N/A	04E	008	2,3,4,5	LEWIS	HOWARD
N/A	04E	004	3	ALONZO M.	HULSON
N/A	05E	015	4,5	ORLEE	JOHNSON
N/A	01W	016	2,3,4,5	FRANK	KERR
N/A	02E	005	2,3,4		KIGGINS
N/A	05E	021	2,3,4	M.B.	KNOWLTON
[illegible]	04W	004	4,5		LEMAN
N/A	03E	028	1,2,3	WILLIAM	LIDDELL
N/A	03E	002	1,2,3,4,5		LIGHTHART
N/A	03W	018	5		LUBLOW
N/A	02W	005	1,3,4		MACK
N/A	05W	019	3,4	LOWELL G.	MANTIS
N/A	06E	008	1	MRS. MAY	MARTIN
N/A	05W	002	2,4		MARTIN
N/A	04W	007	4,5		MAUCH
N/A	03E	025	2,3,4,5	WILLIAM A.	MAY
N/A	03E	026	1,2,3,4,5	WILLIAM A.	MAY
N/A	02W	009	2,4	MRS. J	MC MANN
N/A	05E	002	1,2		MILLER
N/A	05E	001	1,3,4,5	P	MOODY
N/A	03E	012	5		PITCHER

N/A	02E	006	3,4,5	MRS. GEORGE	PLUMMER
N/A	02E	018	3,4,5	MRS.WILLIAM	PLUMMER
N/A	02E	017	2,4	MRS DAVID	PORTER
N/A	02W	006	4,5		POWERS
N/A	05E	017	4	GEORGE	PSHEA
N/A	05E	10	1,2,3,4,5	PHILETUS	PURDY
N/A	01E	014	4	MRS.JAMES	RAGAN
N/A	04E	015	2,3,4,5	CHRIS	REAMS
N/A	04E	016	3,4,5	HAROLD	REAMS
N/A	01W	002	2,3,4		REID
N/A	01W	008	1,2,5	ROBERT	REID
N/A	04W	027	2,3,4,5	SAMUEL	REID
N/A	03W	023	2,3,4,5	PHOEBE R.	ROBINSON
N/A	05W	011	1,2,3,4,5		ROBINSON
N/A	01E	021	5		RYAN
N/A	03W	028	4,5	THOR	SCHREIBER
N/A	01W	001	1,2,4,5		SMITH
N/A	05W	022	5	MRS. W. B.	SMITH
N/A	02W	002	3		SNAY & TUTTLE
N/A	06E	010	4,5	JULIUS	SPOHN
N/A	02E	020	4,5	WILLIAM G.	TISDALE
N/A	02W	025	2,3,4	SARAH & J. E.	TUCKER/MADDEN
N/A	06W	009	3,4,5	WILLIAM	TURNBULL
N/A	01E	004	2,4,5		UPSON
N/A	02E	023	2,3,4	H.A.	VAN VALKENBURG
N/A	01E	013	5		WADE
N/A	03E	015	5	A. W.	WALKER
N/A	03E	016	2,3,4,5	A.W.	WALKER
N/A	02E	003	2,3		WEED

Locating Unmarked Cemetery Burials

Office of the State Archaeologist, University of Iowa, Iowa City, IA 52242.
Burials Program: 319-384-0740.

This guide may be freely copied and distributed. Check the OSA web site for future updates (www.uiowa.edu/~osa/burials).

♦Introduction

Burials are often poorly marked in cemeteries, and many cemeteries suffer from poor or non-existent record keeping. Cemetery plots are typically treated as property, and conflicting claims on a plot can lead to legal headaches for everyone concerned. Likewise, the disturbance of an unmarked grave by a subsequent burial can be traumatic for all the families involved. For these reasons, it is important for the caretakers of a cemetery to do their best to verify that a plot is empty before someone is buried in it or before the plot is sold or traded.

This information is relevant only for the identification of graves which can reasonably be considered less than 150 years old. Older graves, including Native American and pioneer graves, fall under the jurisdiction of the Office of the State Archaeologist. If you are dealing with a grave you suspect is more than 150 years old, cease work immediately, cover any exposed remains, secure the area, and call the Burials Program of the Office of the State Archaeologist (319-384-0740).

This guide is intended to help cemetery caretakers and the general public understand the options that exist for locating unmarked graves in Iowa. The most common ways of locating graves are discussed, as well as their advantages and disadvantages. It should be noted that no process is foolproof in finding unmarked graves. There are specific laws related to disturbance of graves in Iowa. If you are unsure if you are allowed to conduct an investigation, please call one of the phone numbers at the end of this list before beginning work.

As cemetery caretakers well know, what you see on the surface does not always reflect what is below. Grave markers can be at the head, foot, or center of a grave, or can be some distance from the grave. Burials can be oriented in any direction relative to a marker or nearby burials. The markings on the grave stone may face towards or away from the burial. Multiple individuals may be buried under one marker. Many burials lack markers, typically because the original marker was made of wood or because of vandalism. Markers may be situated over empty graves. Well-maintained cemeteries typically do not have depressions over a grave; if there is a depression, it may be far larger or smaller than one would think necessary. Depressions are not always signifiers of graves, since grave diggers can borrow soil from nearby areas to fill in low spots, creating depressions that resemble graves.

In sum, you cannot assume that surface indications have anything to do with what is below the surface. If records are inadequate, some sort of remote sensing or subsurface testing is needed to locate burials. Described here are the most common techniques.

At the end of this report is a flowchart that explains some of the decision-making steps that an archaeologist or geophysicist go through to decide what survey technique to use, this chart may help you decide what survey technique is best for your situation.

♦Rod Probing

Probably the most common way to search for graves is to probe the soil in the area with a 6-foot-long rod with a blunt end and a T-shaped handle. These rods can be purchased commercially or be made by the user. The soil is probed in various spots looking for the resistance one would expect from a coffin or vault.

Advantages: Inexpensive, easy to use, generally accurate for recent burials in coffins or vaults.

Disadvantages: Invasive, so families may object. Cannot find burials that were not in coffins. Cannot find wooden coffins that have rotted, which is very common among graves from the 1800s and early 1900s. The coffin and remains decay and the coffin void fills in, leaving no resistance or voids to be found by the probe. Very difficult to find small coffins of infants or children. Rocks in the soil often give false readings, and it is very difficult to probe when the ground is hard or frozen.

♦Soil Coring

A more-exact method of probing is soil coring, in which a 3/4-inch or 1-inch diameter hollow tube is inserted into the ground above a suspected grave. The core is pulled out, and the soil examined for evidence of disturbance through comparisons with nearby undisturbed areas. This work should be done by a trained archaeologist or soils scientist, since the differences between a disturbed and undisturbed soil can be very subtle, especially if the soil is homogenous or very complex.

Advantages: better than rod probing, since it can detect burials even if the coffin is severely decayed. Cost is usually less than remote sensing. There are numerous qualified archaeologists in Iowa who can help; Iowa archaeology firms are listed at the end of this document.

Disadvantages: Invasive, so families may object. Requires an archaeologist or soils scientist, so cost is greater than rod probing. Difficult or impossible in rocky soil. Often, soil difference can be so subtle that even a trained archaeologist cannot tell if a grave exists for certain or not, especially if the original soil matrix is very homogenous or if the upper soil layers are disturbed by non-grave activity such as earth moving or burrowing animals. It is very difficult to core when the ground is hard or frozen.

♦Formal Excavation

The most-definitive way of determining if a burial exists in a plot is formal excavation. Formal excavation is different than grave digging; typically a grave digger will not notice if they are digging an occupied grave until it is too late and the coffin or burial is damaged or destroyed. Human remains are occasionally found in back dirt or borrow piles at cemeteries, since the grave digger cannot always tell if they have gone through an existing grave. Formal excavation is different than exhumation, in which a fairly-recent burial from a known grave is removed; many funeral parlors or medical examiners can arrange for exhumation. In contrast, formal excavation is the systematic removal of soil in a controlled fashion to locate suspected graves while causing minimal damage to them. Formal excavation is best performed by a trained archaeologist who has an understanding of soils and excavation methods. While there are many ways to perform formal excavation, a common way is to use a wide, toothless backhoe to slowly strip away the soil in

level layers a few inches at a time. This allows the archaeologist to check for evidence in the soil of a grave shaft (the filled-in grave hole) above the burial. Once evidence of a burial is encountered, archaeologists can map the burial and leave it in place. If a disinterment permit has been obtained from the Department of Public Health, an archaeologist can carefully excavate the remains for reburial elsewhere, after a consultation with the person who obtained the permit. If the remains and effects are removed, they can be studied to help determine the identity of the individual. Formal excavation can also stop well above the grave if there is evidence of a shaft.

Advantages: Almost fool-proof and, if properly done, will provide a definitive answer. Can be performed in any soil type, rocks are not a problem. Excavation can provide information about not just if a burial is located there, but can also provide information needed to determine the identity of the buried person. There are numerous qualified archaeologists in Iowa who can help; Iowa archaeologists are listed at the end of this document.

Disadvantages: Highly invasive, so families may object. Expensive; it requires an archaeologist and machinery, and possibly laboratory time. There is always a chance that a very ephemeral burial will be missed and destroyed by machinery, although this is unlikely.

♦Ground-Penetrating Radar (GPR)

With GPR, a radio or microwave signal is sent into the ground and the reflected signal is recorded. The time it takes for the signal to return reflects the depth of penetration, and the returning signal can be stronger or weaker depending on the type of material it is passing through and reflecting off. This data can be used to make an image of the subsurface. A GPR technician will walk an antenna over an area, recording data. This data is processed in a computer to create a two- or three- dimensional image of the subsurface. Under ideal conditions, the grave shaft and possibly the coffin or vault will be visible, but under normal conditions, only the upper part of the grave shaft is visible.

Advantages: GPR is non-invasive, so families typically do not object. Under ideal conditions, it can provide a highly-detailed image of the subsurface. GPR can often see through surface disturbances. GPR is probably the best form of remote sensing if the clay content of the soil is low. Services are available in Iowa, for a fee, from the Office of the State Archaeologist (319-384-0724). Other regional practitioners can be found at the web page listed at the end of this document, or by contacting one of the archaeologists listed.

Disadvantages: GPR's effectiveness depends on soil conditions; it does not work well in clay-rich, rocky, or saturated soils. GPR can be expensive.

♦Resistivity

Resistivity can often be useful in finding graves, it is based on the principle that soils have differing moisture retention properties and therefore will conduct electricity differently. A small electric charge is run between spikes placed in the ground, and the resistance is measured. When a soil is disturbed, as in a burial, different types of soil are brought near the surface which have very slight differences in electrical resistivity. The surveyor will probe at close intervals over a large area collecting data, which is then downloaded into a computer to show areas of disturbed soils. In a cemetery, these often correspond to marked and unmarked graves.

Advantages: The spikes only penetrate a few inches into the soil, so it is relatively non-invasive and families typically do not object. Can give some idea if disturbances are deep or not. Under ideal circumstances, resistivity is quite effective.

Disadvantages: Resistivity is ineffective if the upper level of soil is disturbed over a large area (for example, by previous bulldozing), and it is ineffective under certain conditions, such as when the soil is very wet or very dry. Can be expensive. May be adversely affected by rocky soil. Currently, there are no practitioners in Iowa; for regional practitioners, see the web page listed at the end of this document. Likewise, qualified archaeologists can also help you find a practitioner, a list of Iowa archaeologists is included at the end of this document.

♦Conductivity

Conductivity is often effective in finding graves. It works by applying a magnetic field to the ground surface. This magnetic pulse causes the soil to generate a secondary magnetic field, which is recorded to make a map. When a soil is disturbed, as in a burial, different types of soil are brought near the surface which have very slight differences in conductivity. The surveyor will walk an instrument over a large area collecting data, which is then downloaded into a computer to show areas of disturbed soils. In a cemetery, these often correspond to marked and unmarked graves.

Advantages: Conductivity is non-invasive, so families typically do not object. Can cover a large area in a fairly short period of time. It can be very effective under the proper conditions. Suitable instruments are often available from local soil scientists, but one must be certain the operator understands how to identify variation associated with graves.

Disadvantages: Conductivity is ineffective if the upper level of soil is disturbed over a large area. It is ineffective in the presence of ferrous metal (iron, steel, etc.), so the survey area has to be very clean and checked with metal detectors; metal markers, vases, etc., must be removed. It can be less effective if the soil is saturated, very dry, or rocky. It is affected by nearby power lines. Currently, there are no practitioners in Iowa; for regional practitioners, see the web page listed at the end of this document. Likewise, qualified archaeologists can also help you find a practitioner, a list of Iowa archaeologists is included at the end of this document.

♦Magnetometry

A sometimes effective way to quickly identify graves is with the use of magnetometers. Magnetometers are devices that measure minute changes in the magnetic properties of soil. When a soil is disturbed, as in a burial, different types of soil are brought near the surface which have very slight differences in magnetism. The surveyor will walk a magnetometer over a large area collecting data, which is then downloaded into a computer to produce maps that show areas of disturbed soils. In a cemetery, these often correspond to marked and unmarked graves.

Advantages: Magentomety is non-invasive, so families typically do not object. Can cover a large area in a fairly short period of time. Can be very effective under the proper conditions.

Disadvantages: Magentomety is ineffective if the upper level of soil is disturbed over a large area. Soils need to have significant iron oxide content, or it will not work. Ineffective in the presence of ferrous metal (iron, steel, etc.), so the survey area has to be very clean and checked

with metal detectors; metal markers, fences, vases, etc., must be removed. Because of its limitations, magentometry is often less effective than conductivity or resistance. Magentometry can be expensive. Currently, there are no practitioners in Iowa; for regional practitioners, see the web page listed at the end of this document. Likewise, qualified archaeologists can also help you find a practitioner, a list of Iowa archaeologists is included at the end of this document.

♦Dowsing/ Witching

A common way to search for graves is dowsing, or as it is frequently called in the Midwest, "witching," or occasionally "divining". The dowser walks over an area with two copper wires or rods bent in an L shape, holding the short ends in each hand and pointing the long ends forward. Dowsers believe the wires will cross over a grave. This practice is ultimately derived from an old English and German folk belief that willow or hazel sticks have an uncontrollable desire for water and will point to underground reservoirs. In America, the willow was replaced with copper rods and used not only to find water, but also graves. One common folk belief is that the two rods will converge if the grave is of a male, and diverge if it is female.

Supposedly the magnetic properties of disturbed soil or coffin hardware attract the copper rods. However, this is illogical. First, soil and coffin hardware do not attract metal, as simple experimentation will show. Soil is so weakly magnetic that a hyper-sensitive magnetometer is required to measure it reliably. Second, even if soil or coffin hardware were strongly magnetic, they would not attract copper wire, which is unaffected by magnetism–experimentation at home will show that you can't move a copper wire or penny with a magnet. Third, even if soil or coffin hardware were magnetic, and non-copper rods were used, the rods would *never* cross when exposed to a magnetic field; long metal objects always run *parallel* with strong magnetic fields. Remember the grade-school science project with iron filings on a glass plate over a magnet? The filings line up parallel and curve with the field, they do not cross each other. All credible scientific trials of dowsing have shown that dowsing is no better than random luck or common-sense intuition at finding graves or water (for further information, refer to Robert Todd Carroll's reviews of scientific tests of dowsing in the Skeptic's Dictionary [John Wiley & Sons, 2003], www.skepdic.com/dowsing).

Advantages: There are no advantages to dowsing.

Disadvantages: Dowsing is no better at finding graves than common-sense intuition. Dowsing could put yourself or your organization at legal and financial risk and could lead to public embarrassment. When you make determinations about the presence or absence of burials in a plot you are making decisions about other people's property which carries legal and financial liabilities. The court of law does not recognize folklore such as dowsing as valid scientific practice. While other technologies and methods described here are not foolproof, they can at least be explained and justified in court because they are based on scientific or observational principles.