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**Indiana Department of Natural Resources -
Division of Historic Preservation and
Archaeology (DNR-DHPA):**
<http://www.in.gov/dnr/historic/>

Information about specific Indiana laws applying to cemeteries, Indiana's Burial Ground Registry, and applications for Cemetery Heritage Signs.

A Graveyard Preservation Primer by **Lynette Strangstad**: Book available through the AGS, "Written for non-professional and professional preservationists involved in small to mid-size graveyard preservation projects, this basic primer explains in step-by-step fashion how to preserve and restore a graveyard. Restoration is discussed with recommendations as to what lay people should and should not undertake."

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Saturdays 10:00 to 4:00
Also open by appointment.

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Cleaning & Restoration of Gravestones



The first rule is to do no harm.
The surface of limestone and sandstone markers weather quickly. Clean stones carefully with the correct tools.

Cemetery Cleaning Tools:

- A scrub brush with medium to stiff bristles made of plastic or other fiber. Tooth brushes. No wire brushes!
- Pistol style spray bottle or one-gallon pump style sprayer.
- Household ammonia diluted with water 1 to 4.
- Pool Shock (Calcium Hypochlorite).
- Tarp or large trash bags on which to lay broken or displaced stones.
- A scraper--wooden, like a paint stir stick, or a plastic putty knife scraper for heavy moss and vine roots.
No metal scrapers!
- Orvus Soap found in farm stores to remove dirt.
- Jugs of water.

It is not recommended to use any type of power tool. It is better to have some stains & a readable message than a smooth, clean stone.

Avoid soap; it contains surfactants that break up surface tension and allow water to penetrate deep into surfaces causing more deterioration.

Cleaning

Start by scraping away any heavy dirt or vegetation; rinse away the loose dirt with water. On areas of staining or discoloration from exposure to the dirt and vegetation, spray with the ammonia solution and let soak for a minute or two; then gently scrub stained areas with the brush. Repeat as needed. When finished, rinse the stone to remove any chemicals left on the surface. If the stone still has traces of algae, spray with Pool Shock and let stand for a few minutes then scrub and rinse.

Tools for Resetting Stones

Shovels, plastic trowels, metal tamps, pry bars, rakes, picks, mattocks, jacks, cribbing lumber, & soil probe.

- Gravel or stone. The size depends on the gravestone being worked with, as a rule of thumb large gravestones need larger stone to set on.
- Dirt for backfill.
- Buckets and wheelbarrows to move the dirt and rock.
- Small & medium sized levels
- Measuring tape.
- For stacked stones the stack mortar mix or some other mix to secure the stones without damage.
- Slot & stack mixes, plastic containers for mixing, duct tape for masking

Remove the stone to be reset. Dig wide around the stone to allow room to work.
Markers are heavy. Get help.

Identify reason why the stone was out of alignment. Look for roots, animal burrows, and any changes in the soil that caused the stone to shift.

Level the bottom of the site and tamp firmly. Measure the depth of the site to insure the stone will set at the correct depth for its design to be seen.

Replace the marker on its site and check to see that it sets at the right height and is level. When it is solidly level and in place, backfill around the marker.

Tools for Repairing Stones

- A good epoxy made for use on stone and masonry:
--For tight breaks: Mastico Epoxy (clear). Available from Hilgartner Natural Stone Company: www.hilgartner.com
--For weathered breaks: Bonstone Duropxi at Bonstone Materials, www.bonstone.com
- Clamps and boards to support broken pieces for gluing. It often takes at least four boards to clamp a stone.
- Latex gloves, paint sticks or Popsicle sticks, small plastic cups
- Void Mix, concrete colorants, clay tools
- If you are artistic, add sculpting tools to replace missing letters and artwork in the mortar.

When using mortar, keep a bucket of water and a rag or sponge handy to remove excess.

Begin by gathering all the pieces together. Test -fit pieces.

Give every piece a good cleaning. Pay extra attention to the edges that will be glued together. If the edges are crumbling or very dirty, you may need a wire brush. Pieces must

be clean and dry to get solid stone for the bond to hold.

Mix the epoxy; be sure to mix enough to do the repair, as the glue sets fast. Align the pieces paying attention to where they touch, and apply the epoxy to that area; try to use enough to get good coverage and enough depth to fill small gaps and voids. Press the parts together and scrape off the excess.

On the large pieces the lower section is placed on two pieces of the lumber, which is then leaned against a solid object that will hold them evenly and at a slight angle. The epoxy is applied and the other piece placed on top. More boards are added and clamped in place.

In the case of a broken stone that still has part firmly in the ground, two people can make the repair by supporting the pieces and placing the boards on both sides.

In most cases the weight of the stone will be enough to force the parts together. But if there is doubt, or the upper section seems light, a weight may be placed on top, or if the parts are free of the ground a strap binder can be wrapped around the stone to draw the pieces together. If a strap is used place a short piece of lumber over the glue to keep the strap from attaching to the stone.

Usually the bond is set in less than an hour. The marker can then be replaced and leveled. Try to keep weight off the repair as much as possible. Just to be safe, move it with the clamps in place, and remove them at the last moment.

With stacked markers start by cleaning and making all repairs to the pieces as needed. Level and make sure the base is solidly in place. Make sure you know exactly how the pieces are supposed to go together. In this case you can clean the joints as you go, because the pieces will require more

handling than slabs and will not be glued in place.

When the base is set, scrape and off needed, chip away any material left at the joint with the next piece. You may find a thin layer of weak mortar or almost anything that may have been used over the years.

Mix enough Stack Mix Mortar to place a quarter to half-inch layer over the joint between the pieces. If you choose to use another product, follow the guidelines for it.

Using safe methods, lift the next section into place and align it with the lower section so that the joint is properly aligned and the faces pointing the right directions.

Repeat these steps until the stack is complete. Wipe away any mortar that is pushed out of the joints with a wet rag or sponge leaving a smooth joint.

Once the repairs are complete and have had time to dry thoroughly, go back and fill in any cracks and gaps. Mortar will give the more original look to the marker but matching the color to the stones can be difficult. One suggestion is to save the small pieces of different types of stone usually found around cemeteries and grind them down to mix with the mortar. Color additives are also available.

Cracks must be filled, or water will fill them, freeze in winter, and break the joint at the repair.

Slot Mix: Used to set slabs in slotted bases.

- 1 Part White Portland Cement (Buzzi Unicem in Greencastle)
- 4 Parts Hydrated Lime (field marker, soil additive)
- 8 Parts Clean Sand (play sand)

Add water to use, and mix until smooth. A loose mix allows the mix to flow as the marker is pushed into a slotted base.

Stack Mix: Used to secure stacks of stones

- 1 Part white Portland Cement
- 3 Parts Hydrated Lime.

Mix well. Add water to use and mix to a stiff paste. Place enough between the stones to cover the whole area of the joint mix just loose enough that the excess will flow smoothly and not clump between the stones.

Void Mix: Used to fill large gaps and holes.

- 2 Parts white Portland Cement.
- 4 Parts Hydrated Lime.
- 7 Parts Stone Dust (made by drilling into scrap limestone, some may be replace with silica sand)

Mix to a paste that can be worked into the gap and fill the opening. If sculpting will be done mix slightly thinner to allow some time to work.

Suggested Cemetery Restoration Plan

- Documentation of the site.
- Find the owner and research the number of burials.
- Get permission to work in the cemetery.
- Apply for a probing permit from the DNR.
- Take photographs of conditions before work begins.
- Start map of site showing landmarks, boundaries, GPS, or map coordinates of corners, directions and alignments, and locations of known burials. Repeat this after each step in the restoration process.

Search the site for signs of unmarked burials, toppled or broken markers, survey markers, or signs of abuse. Use probes to gently probe the

top few inches of soil to find stones. A well-kept lawn will add a fourth of an inch of dirt every year from windblown dirt and grass clippings; a site in deep woods can add an inch or more. If stone is found, carefully uncover it to identify it as trash of a marker.

Mark all markers located with visible flags. Update your map.

Uncover and repair all markers as needed. Complete Final Documentation of Site.

Photograph and plot all markers and burials. Record any names and information found on markers. Photograph the finished project. In the case of historical burials, previously unknown burial sites or signs of grave robbing make a report to the DNR.

Helpful Resources

Indiana Pioneer Cemeteries Restoration Project (INPCRP):

<http://www.rootsweb.ancestry.com/~inpcrp/>

Contains information about restoration techniques, resources, workshops, cemetery news, laws, and links to county pages. Also has a Rootsweb email list to help connect people working in cemeteries across the state.

Association for Gravestone Studies (AGS):

<https://www.gravestonestudies.org/>

Has information about preservation, cleaning products, tools and materials, and gravestone symbolism, as well as a FAQ section. The AGS also holds an annual conference, has a lending library and publishes a journal called "Markers."

Saving Graves: <http://www.savinggraves.org/>

This website promotes activism in preserving, protecting, and restoring cemeteries. Includes many helpful articles in the "Library" section, as well as links to regional information.