

# Selected Portions of the United States Army Corp of Engineers Sign Standards Manual

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This document is available as publication EP 310-1-6A and EP 310-1-6B (two volumes) and is available at no cost. Contact the USACE via its web site (see section VI.B) to request these documents. Make sure to request all updates when ordering this document, as there have been several updates to the manual.

(Note: Numbers/letters in parentheses indicate the original section in the USACE manual)

Systematic maintenance is integral to the management of a project sign program. The signs specified in this manual will last many years and require minimal maintenance. They must, however, be checked and serviced on a regular and systematic basis to insure they are clean, undamaged, and that natural surfaces such as wood are properly treated. It is also critical that missing or damaged signs be replaced or repaired in a timely manner.

Sign maintenance guidelines are being prepared for this Appendix for distribution in Spring 1988. Prior to the distribution of this information, please refer to manufacturers' specifications for the respective sign materials and assembly hardware (laminated redwood, HDO plywood, reflective sheeting, etc.).

Two worksheets are provided in this section. The first, page C.3, is to be used by rangers and/or maintenance personnel to report on a specific sign problem. The second, page C.4, is used to schedule and track maintenance work.

The Sign Maintenance Field Report Worksheet is to be filled out by rangers and/or maintenance personnel during scheduled inspections and as problems are noticed on routine trips around the project. This field report is submitted to the project maintenance supervisor or project sign coordinator who will prepare a Sign Maintenance Repair/Replacement Work Order. This work order describes the maintenance work to be completed in detail, and provides a format to schedule and track the work through completion of the job.

The Sign Maintenance Field Report Worksheet is to be used by rangers, maintenance personnel, and the project sign coordinator to identify signs needing repair. This worksheet is to be used for both scheduled maintenance

surveys and a part of daily inspections of the projects while conducting routine business. Each worksheet can accommodate a report on up to five individual signs.

It is imperative that damaged signs be reported as soon as the problem is noticed so that the necessary maintenance work can be

scheduled and completed in a timely manner.

Shown below is a reduced version of the Sign Maintenance Field Report Worksheet. This worksheet has been filled out to illustrate how these forms are used. Full size reproduction art of this worksheet is provided in Appendix F, page F.146.

Instructions: Refer to the guidelines below when preparing a Sign Maintenance Field Report Worksheet.

- 1) Plan ID Number: Identify if known. If not known, describe sign type and placement location so that information can be placed on the worksheet by the person preparing the Sign Maintenance Repair/Replacement Worksheet.
- 2) Location: Identify location of sign by area or road name.
- 3) Date: Enter date of report.
- 4) Description of Problem: As shown, provide a brief but thorough enough description of the problem so that an accurate repair or replacement work order be prepared by the maintenance foreman or project sign coordinator.
- 5) Recommended Action: Provide a general description of the work needed to repair or replace the sign.
- 6) Title Block: Enter all requested information as shown.

<small>Plan ID No.</small> <b>R-22</b>	<small>Sign Location</small> <b>Raven Circle Campground</b>	<small>Date</small> <b>8-17-88</b>
	<small>Description of Problem</small> <b>Composite identification billboard damaged by vehicle (No. 12)</b>	<small>Recommended Action</small> <b>Replace. Reuse existing number 12 panel. Place into new post in shop. Remove old concrete with post.</b>
<small>Plan ID No.</small> <b>S-12</b>	<small>Sign Location</small> <b>Shepards Dock</b>	<small>Date</small> <b>8-18-88</b>
	<small>Description of Problem</small> <b>Parking Sign "Tie down Only" damaged by vandals</b>	<small>Recommended Action</small> <b>Replace sign panel (1" letters). Post is in good shape.</b>
<small>Plan ID No.</small> <b>N-8</b>	<small>Sign Location</small> <b>Highway 128 at entrance to Neils Pencil Area</b>	<small>Date</small> <b>8-18-88</b>
	<small>Description of Problem</small> <b>Tree branches blocking view of STOP sign at exit on to Rt 125</b>	<small>Recommended Action</small> <b>Have maintenance crew remove storm damaged branches. Work will require a pole saw.</b>
<small>Plan ID No.</small>	<small>Sign Location</small>	<small>Date</small>
	<small>Description of Problem</small>	<small>Recommended Action</small>
<small>Plan ID No.</small>	<small>Sign Location</small>	<small>Date</small>
	<small>Description of Problem</small>	<small>Recommended Action</small>
		
<small>Project Name/Location</small> <b>Lake Shelbyville</b>		
<small>Prep by</small> <b>JRT</b>   <small>Date</small> <b>8-18-88</b>   <small>Review by</small> <b>MS</b>   <small>Date</small> <b>8-21-88</b>   <small>Page</small> <b>1</b> / <small>Pages</small> <b>1</b>		
<b>Sign Maintenance Field Report Worksheet</b>		

The Sign Maintenance Repair/Replacement Work Order is used as the primary record to schedule and track sign maintenance work. This includes a description of the work to be done as interpreted from the field report as well as the labor, materials and equipment required to complete the job. This worksheet can be conveniently printed from the full size repro-

duction art provided in Appendix F, page F.147 in multiple sets to allow distribution of copies for the sign coordinator, maintenance foreman, and repair crew.

Shown below is a reduced version of the worksheet. This sample has been filled out to show how it is to be used.

Instructions: Refer to below when preparing a Sign Maintenance/Replacement Work Order.

- 1) Requisition Number: Enter request number for the job, date and foreman's name.
- 2) Plan ID Number: Identify sign number from the project sign plan. Describe the sign location and project name as shown.
- 3) Sign Type: Enter all standard descriptive information as requested on the two lines provided.
- 4) Description of Problem: Provide clear work instructions for maintenance crews. Insert name of the person that reported the problem and date of the field report. This record will help prevent duplicate requests for the same repair.
- 5) Materials Required: List all items needed to make repair.
- 6) Order Materials From: When materials must be ordered for the repair, note the name of the supplier and order information on the right.
- 7) Equipment Needed: List vehicles and tools required to make repair.
- 8) Labor Required: Identify personnel needed and time required to make the repair. Upon completion, maintenance personnel should note the actual time required for to complete the project.
- 9) Project Review/Inspection: All completed work should be inspected prior to updating project sign plan records to verify that scheduled work was completed as specified.
- 10) Sign Schedule: Records of all completed maintenance work shall be made part of the project sign schedule.



**US Army Corps  
of Engineers**

**Sign Maintenance  
Repair/Replacement  
Work Order**

Prepared by: Foreman  
J. Smith  
Date  
8/23/88  
Requisition Number  
831-0098

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Plan ID No. S-12      Project Name and Sign Location  
Le Page Park Boat Launch  
Lake Umballa

Instructions: Use this form to request sign maintenance or replacement as reported on the Sign Maintenance Field Report Worksheet. Place "NA" in any space that is not applicable to this requis. This Worksheet should be retained for shop records with copies for Maintenance Foreman and Project Sign Coordinator.

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Sign Type	Legend Size	Panel Size	Specification Code	Special, Not Standard	
PRK-08	1"	12" x 14.66"	ALU-5	na	
Post Size	HxGL	Color	Installation Date	Mfg. Code	Comply (check)      Manual Page
4" x 4"	60"	WH/BK	9-21-87	881	<input checked="" type="checkbox"/> 9.11

Description of problem and recommended action:  
 Replace panels of PRK-08 adjacent to launch area.  
  
 Tighten cap screws of all other parking signs while in the area.

Materials Required

- 1- PRK-08-1"
- 2- .375" x 3.5" Cap screws and cap nuts

Range Report Date  
8/18/88  
Report by name:  
J.F. Thomas

- Wash sign
- Remove graffi
- Repair sign face
- Repair sign zone
- Repair sign mount
- Replace sign mount
- Remove sign
- Replace with new sign panel and mount

Reviewed by Project Sign Coordinator  
M. Stevens

- From Stock
- Order

---

Order Materials from  
NA

Date Ordered \_\_\_\_\_

Expected Delivery \_\_\_\_\_

Requisition File No \_\_\_\_\_

---

Equipment Needed  
Pickup Number 3451

Labor Required  
Laborer (Bob Berger)

- Shift Crew
- Contract

Time Required  
60 min.

Work to Begin (date)  
8/24/88

Foreman  
J. Smith

---

Project Review/Inspection

Date Completed  
8/24/88  
Inspected by  
J. Smith

---

Update Project Sign Schedule

Date  
8/25/88

### Bullet Holes or Punctures on HDO Plywood

Where repairs are needed to restore a sign's legibility, follow these steps:

**Step 1** Remove all loose wood on both sides of the sign and all damaged sheeting.

**Step 2** Fill holes with wood filler or Bondo, if necessary, and sand smooth. Wipe area with clean cloth.

**Step 3** Apply a new patch of reflective background sheeting, extending it at least 1/2 inch beyond the patched area on face of the sign.

**Step 4** Replace damaged legend with die-cut, pressure-sensitive, pre-spaced letters, borders or symbols covered by the patch and firmly squeegee in place.

**Step 5** Paint the repaired area on the back of the sign with Corps Brown polysilicone enamel.

### Bullet Holes or Punctures on Aluminum Signs

It is generally not cost efficient to repair aluminum sign faces damaged from bullet holes. It is recommended that these signs be replaced as soon as conditions are identified in order to discourage similar problems with other signs.

A bullet-damaged sign can be repaired in the shop and re-used, following the procedures below.

**Step 1** Remove all damaged background sheeting and legend.

**Step 2** Straighten the sign using a hammer and backing plate.

**Step 3** Remove any additional sheeting damaged during straightening.

**Step 4** Clean the entire area with Xylol; then naphtha. Note: screen printed sign surfaces will be dissolved using these cleaning agents.

**Step 5** Patch the bullet hole or puncture on both sides using 3M No. 425 UAL aluminum foil tape. Use your squeegee to apply firm pressure. Apply to both sides of the sign. On large holes, begin by placing the foil at the bottom of the hole, overlapping each strip shingle fashion as you move up.

**Step 6** Apply reflective background sheeting, extending it at least 1/2 inch beyond the foil tape strips.

**Step 7** Preferably resurface a panel with a new sign face, or if the damaged area is quite small, replace damaged legend with die-cut, pressure-sensitive, pre-spaced letters, borders or symbols and firmly squeegee in place.

**Step 8** Paint taped surface on back with metallic paint to match area.

### Repairing Damaged Aluminum Signs

A bent aluminum traffic sign can often be restored simply by straightening. If the reflective background or legend has not been scraped or severely damaged, a replacement face may be applied over the old sign face. Generally, it is easier to repair a sign that is bent or has a damaged face in the shop instead of at a field location. The bent panel may be hammered out using hardwood backing blocks or straightened on sheet metal rollers.

### Repairing Routed Wood Sign Faces

Many abrasions or bullet holes in a routed redwood sign will be difficult to see from a normal viewing distance. If damage is extreme, follow the procedures listed below to repair the existing problem.

**Step 1** Remove all splintered wood and dress all bullet holes and damaged wood with a knife.

**Step 2** Fill all cracks, holes and imperfections with wood filler.

**Step 3** Sand the repaired sections, sign edges, back and face. Dust off sign with air hose or tack rag; thoroughly clean repaired section.

**Step 4** Apply Corps Brown semi-transparent stain to repaired area.

### Repainting Routed Redwood Sign Legends

To refinish the paint on routed sign legends or replace the castle logo, follow the procedure described in Appendix B, page B.3a.