



# Stabilization and Preservation of DoD-owned Military Fortifications

Project #  
05-239

## Background:

The National Park Service has been active in developing management strategies to manage and preserve earthworks (primarily of earth construction) under their stewardship. Preservation approaches have been developed, implemented and evaluated by the National Park Service, and guidance manuals have been developed and distributed. The Department of Defense (DoD) is responsible for the management of military fortifications that have been constructed at different historic eras, and of a range of materials (e.g. concrete, brick, masonry, dry-stacked stone, and/or various combinations). Currently, DoD does not have an integrated approach to preserve and manage the full range of military fortifications.

## Objective:

This project reviewed existing literature, performed four demonstration projects, and prepared a military fortifications preservation and stabilization guidance document that can be used throughout DoD. Numerous DoD installations contain military fortifications. These fortifications range in historic eras from Revolutionary War earthworks, through Civil War earthworks, 19th and 20th century coastal defense fortifications, and World War I/World War II training and combat positions. These military fortifications are constructed of various materials, and various combinations of materials. These fortifications were constructed to support active military operations, to support military training, or as coastal defensive structures. These military fortifications are important cultural resources that can be used to support military education and training. Because of their materials, they are particularly vulnerable to erosion and deterioration. This project will perform demonstration projects for various construction types and historic eras, and at different geographic locations.

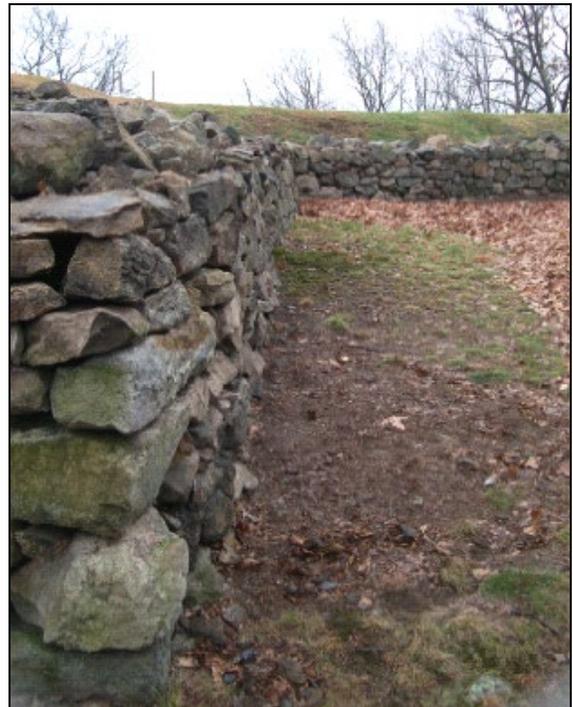
## Summary of Approach:

Preservation strategies were developed for dry-stacked stone and earth, dry-stacked stone, brick, and dirt, mortared brick, granite and sandstone, and concrete and dirt.

## Benefit:

An integrated, proven set of procedures were developed that are applicable to this type of cultural resource. This will permit DoD installations to implement preservation and stabilization projects without having to individually review existing documentation, prepare procedures, and

similarly duplicate efforts. Additionally, this would permit DoD installations to utilize previously proven techniques, rather than expending resources on techniques that are unproven, and might not be successful.



Redoubt Four (1779-1783), Fortress West Point, Dry-Laid Stone Walls at West Reentrant Angle (Photo by D. R. Cubbison)

## Accomplishments:

Demonstration projects were implemented for the stabilization and preservation of dry-stacked stone and earth military fortification at Redoubt No.2, West Point; for the stabilization and preservation of a complex mortared stone, earth and brick military fortification at Constitution Island, West Point; and an interpretive viewing platform was designed by West Point Cadets and constructed at Redoubt No. 2, West Point. A comprehensive guidance document was developed and is available for reference and utilization through the DoD Legacy Resource Management Program.

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