

3.13 RETAINING WALL



Figure 3.25. Retaining Wall (Source: Department of Civil, Construction, and Environmental Engineering, Iowa State University)

Overview

Description: A wall constructed to assist in the stabilization of a cut or fill slope, where maximum permissible slopes are not attainable without the use of the wall.

Problem identification: Additional slope reinforcement is needed because of unstable material or space limitations.

Design Purpose: To construct an attractive slope that will provide a safe area below.

Associated practices: Used in areas of unstable soils where earth slides may occur, where the slopes are steeper than the angle of repose, or where the horizontal distance is limited.

Installation: A number of materials are available for stabilizing steep slopes. For the most part, they are permanent in nature. The following materials can make satisfactory walls: concrete masonry, concrete cribbing, gabions, precast stone, reinforced earth, steel piling, stone drywall, rock riprap, and treated wood timbers.

Many factors must be taken into account in the design of a retaining wall. Some of those factors include thickness, stress, foundation design, bearing value of the soil, height of the wall, and drainage. Since each situation requires a specific design, a qualified designer is recommended.

Maintenance/inspection: Inspection is recommended on a monthly basis for the first year and then immediately after a severe precipitation event. Correct problems as soon as possible.

Design life: Permanent.

Estimated cost: Unit costs vary with the surface materials selected.