

## 7.6 Minimal Excavation Foundations

Low impact foundations are defined as those techniques that do not disturb, or minimally disturb the natural soil profile within the footprint of the structure. This preserves most of the hydrologic properties of the native soil. Pin foundations are an example of a minimal excavation foundation.

### 7.6.1 Runoff Model Representation

- Where residential roof runoff is dispersed on the up gradient side of a structure in accordance with the design criteria and guidelines in BMP T5.10 of Volume V – Chapter 5, the tributary roof area may be modeled as pasture on the native soil.
- Where “step forming” is used on a slope, the square footage of roof that can be modeled as pasture must be reduced to account for lost soils. In “step forming,” the building area is terraced in cuts of limited depth. This results in a series of level plateaus on which to erect the form boards. The following equation (suggested by Rick Gagliano of Pin Foundations, Inc.) can be used to reduce the roof area that can be modeled as pasture.

$$A_1 - \frac{dC(.5)}{dP} X A_1 = A_2$$

$dP$

$A_1$  = roof area draining to up gradient side of structure

$dC$  = depth of cuts into the soil profile

$dP$  = permeable depth of soil ( The A horizon plus an additional few inches of the B horizon where roots permeate into ample pore space of soil).

$A_2$  = roof area that can be modeled as pasture on the native soil

- If roof runoff is dispersed down gradient of the structure in accordance with the design criteria and guidelines in BMP T5.10 of Volume V – Chapter 5, AND there is at least 50 feet of vegetated flow path through native material or lawn/landscape area that meets the guidelines in BMP T5.13 of Volume V – Chapter 5, the tributary roof areas may be modeled as landscaped area.

### 7.6.2 Limitations

- To minimize soil compaction, heavy equipment cannot be used within or immediately surrounding the building. Terracing of the foundation area may be accomplished by tracked, blading equipment not exceeding 650 psf.