

# A Site in Hebron, New York: Soil Analysis

Prepared by Lasoff Landscape Design

## Soils

### Bernardston Series

According to the USDA *Soil Survey of Washington County, New York*, all the soils on the property belong to the Bernardston Series with some mixture of the Nassau Series. The Bernardston soils are well drained to moderately well drained and are found on uplands, frequently on drumlins. These soils “formed in glacial till derived from shale, slate, and sandstone.” A very firm, slowly permeable fragipan occurs within the upper 18 to 30 inches, causing a perched water table during the spring and wet periods. The fragipan is generally not penetrated by roots. Above the fragipan, permeability is moderate and the available moisture capacity is moderate to high. Lime content is low to very low. Capacity to supply nitrogen and phosphorus is medium. Capacity to furnish potassium is low. Root growth is generally limited to the top 18 to 30 inches, where acidity is slight to medium. Acidity below 30 inches is strong.

### Nassau Series

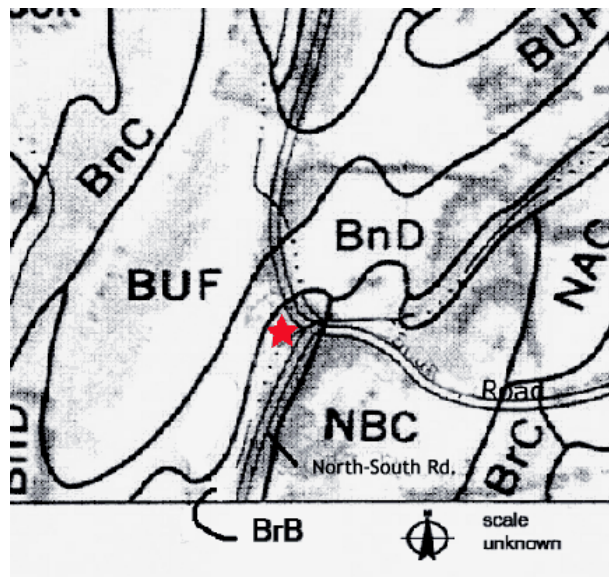
The Nassau soils are shallow, somewhat excessively drained, medium textured soils that have shale or slate bedrock within 10 to 20 inches of the surface. Water drains moderately. Plants are subject to stress early during dry periods, because the capacity of the soil to hold moisture is limited. Lime content is low. Capability to supply nitrogen and phosphorus is medium. Capacity to furnish potassium is low. The soil is strongly acid throughout.

### Distribution on Property

A long, narrow band of land along the eastern side of [the North-South] Road—**Bernardston-Nassau shaly silt loams, 3 to 8 percent slopes (BrB)** (60% Bernardston, 40% Nassau) Very similar to the general series description, but the surface is shaly silt loam. Where the Nassau soil is shallow over bedrock, it tends to be droughty and is subject to slight to moderate erosion. Sod-forming crops are recommended. The capacity to supply nutrients is low. Woodland group 3o1 on the Bernardston soil usually contains sugar maple, birch, beech, black locust, and red oak. Woodland group 5d1 on the Nassau soil usually contains beech, birch, and maple.

Upslope, west of BrB—**Bernardston gravelly silt**

**loam, 15 to 25 percent slopes (BnD)** Similar to the general series description, but the upper part of subsoil is typically thinner. Runoff is medium to rapid. Slopes are short and tip in many directions. Soil is subject to erosion and therefore suited to hay, pasture, and woodland, where farm equipment is not used. Mostly grassland. The woodland group 3r2 usually contains beech, birch, maple, black locust, and red oak.



Upslope, west of BnD—**Bernardston soils, steep and very steep** (BUF) Similar to representative soil profile, although, the soil can also be very gravelly or stony. Runoff is rapid. Very susceptible to erosion, and in such places the fragipan is near the surface. Due to the steep slopes, these soils are best suited to woodlands and some forms of recreation. The woodland group 3r4 usually contains beech, birch, maple, red oak, and black locust.

### **Implications**

Because grassy, sodlike crops have fine roots that intertwine close to the surface of the soil and, thus, stabilize sloping land, grazing and haying, which already occur in the fields, are probably the best uses for this land and should be continued. Shrubs are not particularly well suited for stabilizing steep slopes and should not be introduced except on flatter land. Trees that do not shade out or otherwise kill grasses can be introduced. When invasive plants are removed, other plants should be introduced immediately to prevent erosion. Some form of erosion control may be necessary when new plants are introduced.