

PART III

FACTORS AFFECTING DEVELOPMENT

There are man-made and natural barriers acting as constraints to development such as water, topography, soil conditions, and regulatory controls. In many situations it is possible to overcome these barriers through costly development methods. However, the purpose of analyzing soils and identifying areas according to their development limitations is not intended to restrict development but rather to act as warning signals of potential problems that may be costly to overcome. Following are descriptions of some man made and natural development limitations considered:

Background

Most of Dunn County is composed of land known as Western Coulees and Ridges, "characterized by highly eroded, driftless (unglaciated) topography, relatively extensive forested landscape, and big rivers and a wide river valley." This includes the Mississippi and Chippewa. Some areas contain cold streams fed by springs. Silt loam (loess) and sandy loam soils cover sandstone resting on top of dolomite. "Vegetation consists of bluff prairie, oak-forest, oak savanna, and some mesic forest." Relic conifer forests are present. There are floodplains with connected wetlands. Agriculture, including dairy and beef forms, is the primary use of land on the ridge tops and stream valleys. Some croplands and pasture lands are set aside in the Crop Reserve Program (CRP). "Wooded slopes are often managed for oak-hardwood production."

"Dunn County occupies 870 square miles near the Mississippi in the region of the older drift and driftless area." The major soils are Knox silt loam and Marshall silt loam, made largely of loess wind-borne to this region.

Dunn County lies within a roughly S-shaped transition belt known as "the tension zone" where Northern Forests and Southern Forests meet. "Early forest surveys indicate that Northern forests consisted of a mosaic of young, mature, and 'old growth' forests composed of pines, maples, oaks, birch, hemlock, and other hardwood and conifer species." "Southern Forests are distinct from the Northern forests because of the predominance of oaks and general absence of conifers. They are relatively open or have a park-like appearance, created by the lack of small trees and shrubs. Examples of southern Forest biological communities are found within southern Dunn County."

Glacial Deposits

The most extensive glacial-lake deposits in the Lower Chippewa basin consist of interlayered silts and clays in the Chippewa and Red Cedar Valleys that were deposited when the margins of a glacier located in Minnesota and Iowa blocked drainage in western Wisconsin roughly 460,000 - 770,000 years ago.

Glacial outwash is present in the Red Cedar Valley.

Bedrock Geology

Most of the bedrock geology found outcropping in the Town of Spring Brook consists of Cambrian-age (approximately 520 million years old) sandstone. Many outcrops around the Town exhibit the sandstone that makes up the majority of the Township. The Trempealeau Group, consisting of the Jordan and St. Lawrence Formations, along with the Tunnel City Group, make up the bedrock geology formations in the Town.

Sources:

Bedrock Geology of Wisconsin, Northwest Sheet, by M.G. Mudrey, G.L. La Betge, P.E.

◆ Myers, and W.S. Cordua, 1987, Wisconsin Geological and Natural History

◆ Survey Regional Map Series (Map 87-11).

Bedrock Geology of Wisconsin, West Central Sheet, by B.A. Brown, 1988, Wisconsin

Geological and Natural History Survey Regional Map series.

Depth to Bedrock of Dunn County Wisconsin, by I.D. Lippelt and T.E. Fekete, Wisconsin Geological and Natural History Survey, Miscellaneous Map Series.

Soils

Soils in the town have been mapped, analyzed and categorized as to their development suitability. Soil characteristics within the first few feet of the surface play an important role in the amount and quality of water entering the groundwater. Specific development limitation information can help decision makers determine the suitability of specific areas for particular types of development. Some limitations can be overcome, or their effects minimized if proper measures are taken. The Town should encourage development where public services can be maximized and where the limiting factors can be avoided. In areas with severe limitations, questions regarding the economic and environmental feasibility of such development should be posed. It is also important to note that the following information is generalized for planning purposes and that these materials do not replace the need for site-specific evaluation.

Septic Suitability

Soils place limitations on the construction and function of septic systems. The entire town has some soil conditions unsuited to septic development due to predominance of soils that are well or excessively drained, steep topography, or soils with shallow depth to groundwater or bedrock. In areas with shallow soils that are excessively drained, concentration of septic systems could threaten groundwater quality. Current septic system regulations only require a minimal soil depth, sufficient water infiltration into soil, and minimal separation between wells and drain fields. These regulations may not fully address the potential impacts of unsewered development in the Township.

Basement Suitability

Soil limitations affecting basement construction are mostly due to friable soils and shallow depths to bedrock or groundwater. Basements can be built where friable soils exist, but usually result in higher excavation, backfilling and erosion control costs. Basements often cannot be built on shallow bedrock or in areas with a shallow groundwater depth.

Flood Plains

The Town of Spring Brook has a number of areas adjacent to rivers and streams where water fluctuations can cause flooding. To protect property and public investments, Wisconsin Statutes 87.30(1) requires counties, cities and villages to implement Floodplain Zoning. Dunn County is responsible for administering the Flood plain Management Program.

Development in a floodplain is usually determined through the use of Federal Emergency Management Agency (FEMA) 100-year floodplain maps. While these FEMA flood insurance maps delineate the floodplain, past experience indicates these maps are old and errors have been found. Another method is to map soils that show evidence of flood conditions. For the purpose of this plan the flooded soils have been mapped, and, as is the case with the FEMA maps, errors have been found. Therefore, it is important to note that the following information is generalized for planning purposes and that these materials do not replace the need for site-specific evaluation.

Prime Agricultural Land

⚠️⚠️⚠️⚠️ This land is necessary for the continuation of the production of food or fiber and was defined strictly by soil productivity.⚠️ The maps do not reflect whether the land is currently being cropped or has a history of cropping.⚠️ For planning purposes, soils are considered to be of high or medium production if they meet the criteria as described in the Agricultural section of the plan (see High and Medium productive Soils Appendix E⚠️⚠️⚠️)

Steep Slopes

See **Steep Slopes** in [LAND USE](#) section.

Surface Water

Surface water resources include water that is standing still or flowing, navigable or intermittent, which collects and channels overland runoff. Rivers and streams are the primary components that make up surface waters in the Township and of primary concern is shoreland protection. Shore lands provide habitat for both aquatic and terrestrial animals and vegetation. Shore lands act as buffers to protect the water quality of these resources. However, shore lands are also prime areas for residential development and are receiving increased exposure to contamination from residential development and recreation use. The State of Wisconsin requires counties to prevent the loss and erosion of these resources by adopting and enforcing a shoreland ordinance.