Topography

The U.S. Geological Survey (USGS) is a common and valuable source of topographic information. A local selection of the 7.5-min quadrangle series of topographic maps is found in every design office. The amount of detail and relative accuracy for the cost is difficult to improve upon. USGS maps are available from a variety of sources, including the Internet (www.usgs.gov). There are commercial sources of topographic information on CD-ROM as well, and some of these are accessible through the USGS Web site. These commercial sites are operated by firms working in partnership with the USGS on a variety of projects.

The most basic element of site analysis is the lay of the land. The topography of a site may dictate the purposes for which the site may be practically used and eventually the layout of the proposed project. The location of buildings and roads, pedestrian circulation, and the arrangement of storm water features are all commonly affected by topography. The analyst must consider how the existing topography affects the proposed use and vice versa. Although the contour intervals are fairly large, the relative accuracy of the quad maps allows for interpolation for general planning purposes although they are not adequate for design.

The analysis of the site in the context of the proposed development program provides an early look into how the proposed development will fit into the site. Will significant earthwork be necessary? Will retaining walls or other appurtenances be required? Can the site be accessed from adjacent roads? Is there visibility into the site from adjacent roads?

The nature of the material making up the slope is also important. Though soils will be discussed in greater detail in another section, it is important to mention that soils surveys may provide important information pertaining to the erodability of soils and the risks associated with cut-and-fill operations. Removing established vegetation from slopes may create unstable conditions requiring additional engineering and construction costs. Many land development and zoning regulations include restrictions on the development of steep slopes.

A slope analysis is done to identify the areas of steep slopes and the possible location for building sites and access. The slope analysis is usually a graphic representation of slope shown in classes or ranges. The ranges are sometimes established by local ordinances that describe the parameters to be observed when conducting a slope analysis and steep slope development restrictions. The slope analysis may identify possible routes for on-site traffic circulation as well as drainage patterns. By viewing the finished drawing, the restrictions imposed by slopes and the development patterns that are in tune with the site generally become more apparent.

From a hillside the long views are generally considered the most valuable. A site analysis should include the identification of the long views and any obstructions or limitations to them. The development of the site should proceed with the maintenance and optimization of the long views. Undesirable views should also be identified and addressed in the analysis.

The approach to the site, as well as the actual means of access onto the site, are key elements. The best paths of circulation, the minimization of impact on