

Holding Your Ground:

The Role Of Environmentally Friendly Development Regulations

by Daniel G. Vogel and Paul V. Rost

As prime developable land becomes more scarce, many local governments are confronted with the problems caused by developing less desirable parcels. Severe negative environmental effects can result if traditional development practices are used on these more environmentally sensitive sites and public concern for these environmental problems is on the rise.¹ Inadequate regulation of development practices, especially in urban and suburban communities, has led to stormwater problems, loss of tree canopy and a threat to long-term property values in affected areas.

Local governments have long regulated building and construction practices through implementation and enforcement of building codes, but similarly detailed codes for development of the ground under the buildings are less common. Many local and regional governments, however, now are reassessing traditional development controls, or lack of controls, and are beginning to implement more detailed regulations to ensure that the watersheds, natural resources, trees and overall environment are not lost in the name of promoting new construction.

The concept behind many of these "environmentally friendly" development regulations is to encourage or require site development to be designed to fit the land rather than to change the land to fit the preconceived project design. These regulations range from simple grading requirements to detailed tree preservation or natural resource protection laws, each addressing somewhat different environmental concerns.



This type of damage can result when improper grading or site preparation occurs.

Grading And Site Disturbance Ordinances

One of the most important development regulations a local government can enact to prevent some of the unnecessary negative impacts of traditional development and site preparation practices is a basic grading ordinance. In hilly terrain, traditional development practices require the site to be "cut-and-filled" – a practice in which otherwise uneven terrain is flattened by "filling" the valleys and "cutting" off the hillsides. The resulting site is level and easy to build on without any need to design the buildings to fit the individual site. While this practice may be necessary for some uses or some locations, the impact to the community can be lasting and devastating.

By definition, "cut-and-fill" results in a loss of all the trees and vegetation on a site. Severe slopes and retaining walls often are necessary at the edge of the sites, and erosion and downstream watershed problems may result because the natural system for slowing and absorbing rainfall now has been radically altered. Poor "cut-and-fill" projects also can result in disaster for homeowners if their house was placed on unstable soil or on inadequately finished grades – problems that may not emerge until years later.

The main alternatives to "cut-and-fill" are grading practices that work with the terrain, and require the development to be designed to the existing terrain, rather than to reshape the terrain to satisfy the



The effects of unchecked stormwater on existing creeks and infrastructure are shown in this photograph. Photograph by Maryanne Simmons

predesigned buildings. As a result, ordinances that simply address good site design can vastly reduce the amount of grading necessary, and thereby reduce the associated negative impacts.

Beyond requiring good design, a local government also can include a few simple grading requirements that will provide substantial benefits. For example, one of the most destructive practices that has been prevalent throughout Missouri is the "preparation" of a site by initial clearing of all trees and minor leveling of the site long before any specific development is proposed. While this vacant "moonscape" may be a great advertisement for a developable site, it creates the worst of both worlds for the community – all the environmental damage now, with none of the economic benefits that may come only years later.

Even where communities already impose basic grading requirements, such ordinances often do not regulate what is known as "grubbing" – tree removal and rough site disturbance. For this reason, two important aspects of a new grading code include: 1) defining grading to include tree removal and basic site disturbance and 2) permitting such grading or disturbance only after a specific development plan is approved. In this way, the community does not suffer

years of an eroding moonscape, and the ultimate development approved will have at least a chance at being designed to accommodate the undisturbed terrain.

Where extensive grading is unavoidable, clear rules for reseeded and revegetation should be established, and grading should be focused toward times of year during

which vegetation can be quickly reestablished. Other important features of a grading ordinance include:

- requiring single designated truck routes for delivery or removal of soil to reduce mud, street damage and traffic problems,
- requiring bond or cash deposit to ensure reseeded or to remedy damage to roads or nearby sites, and
- regulation of grading on or near specific land features (steep slopes, creeks, floodplain, etc.).

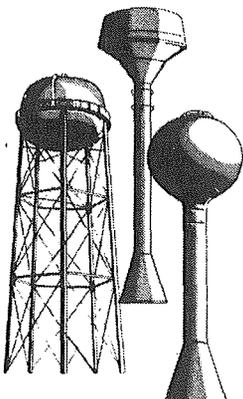
Communities with significant development should closely review existing stormwater regulations as traditional urban practices have proven to be inadequate. The St. Louis Metropolitan Sewer District recently implemented new and more stringent stormwater management regulations that significantly increase the amount of stormwater detention that must be included in any grading plan.² These regulations were an attempt to address the severe erosion, increasingly more common flash flooding, and other similar impacts caused by substantial new development under regulations that did not adequately address the impacts

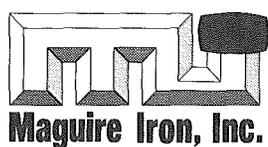


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of such development in difficult terrain. Where stormwater infrastructure is nonexistent, the impact on the natural streams, creeks and environment has been remarkable.

Due to recent changes in Missouri liability law, perpetrators of poor grading practices are now susceptible to a lawsuit by neighbors for damages from siltation, erosion or stormwater runoff caused by the development.³ Thus, more than ever, developers may acknowledge the need for such regulations.

Natural Resource Protection Ordinances

More extensive regulation of the environmental impact of development occurs in ordinances identifying and limiting the destruction of certain environmentally significant land features. The most basic such regulation is the federal, state and local regulation of building in the flood plain, due to the harm to the potential users as well as the impact of the buildings on upstream

flooding. More recently, regulations have emerged to protect sinkholes, wetlands, creeks and riparian channels,⁴ and steep slopes due to the demonstrated impact of unchecked development of these areas. The basis for limiting the destruction of these areas is founded in part on the community impact of eliminating the natural system for slowing stormwater or filtering drinking water. These regulations are prevalent in other parts of the country and are continuing to gain attention and adoption in Missouri.⁵

Tree Preservation

Far more common has been the move to preserve trees or require tree planting as a condition of each development. Such requirements, if carefully drafted, are both legally and scientifically justified. While many residents will demand preservation of trees for the purely aesthetic benefit trees provide, the scientific justification for tree

preservation includes:

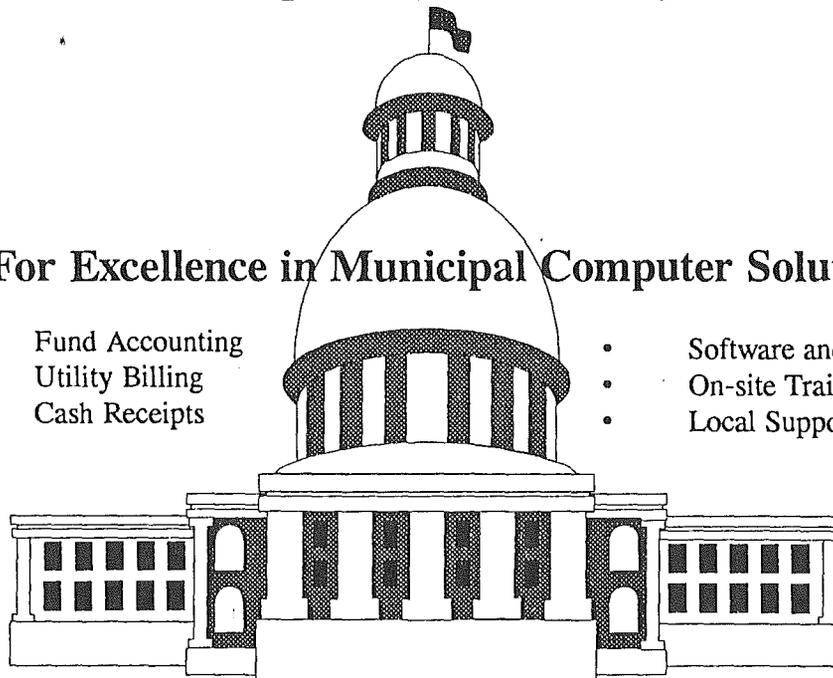
- reduction of stormwater velocity;
- energy savings from shade and windblocks;
- maintenance of property values;
- reduction of soil erosion; and
- reduction of air pollution when preserved in large quantities.⁶

Tree preservation may be in the form of "tree canopy" – the mass or area that might be visible from above or preservation of specific tree specimens. Oftentimes, a tree preservation ordinance that is crafted to require preservation of trees in building setbacks, flood plain areas or steep slopes, or one that allows mitigation by replanting, may have little impact on the amount or intensity of development still permitted on the site, while greatly enhancing its appearance and retaining the value from the tree mass. Tree preservation ordinances often require preservation

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of between 30 and 70 percent of the trees on a site, and allow for replanting where original preservation is not possible.

Providing Incentives To Developers

One of the best ways to promote environmentally sound development is to create flexible regulations that ensure environmental compliance generally will not result in a substantial reduction in its development capacity. For example, to encourage preservation of the existing flood plain or steep slopes on a site, the zoning regulations might be modified to allow a cluster of homes on a hillside on lot sizes smaller than might otherwise be permitted. In this way, the developer still obtains the same number of homes, but is not forced to build on the entire parcel to meet the minimum lot sizes. Similarly, regulations regarding the width or maximum slope of streets might be varied to prevent excessive grading or disturbance on sensitive portions of a site. In this way, a local government may even reduce the development cost while preserving important natural resources for the surrounding community.

The federal government, in establishing mandatory wetland protection, has taken a less voluntary approach, but even in this setting "wetland banks" are beginning to emerge allowing a more flexible approach to replacement of natural resources where it is not possible to preserve the resource on site. This approach also could be used, with limits, in local communities to allow replacement of trees, floodplain or other environmental resources to mitigate the harm that might otherwise result from development.

Finally, some sites are simply so difficult to develop that the cost to the environment and the developer may approach or even exceed the immediate value of the property. In these cases, the communities should actively encourage donation of the property to the local government or a qualified tax-exempt entity or land trust. The tax savings from the donation may approach or even exceed the net value of the

property to the owner, and therefore donation can provide a profitable alternative for both the property owner and the community. Missouri law expressly encourages such activity, including the donation of "conservation easements" conveying the development rights to the land to the qualified entity, while retaining ownership of the property for its current lower intensity use.⁷

A combination of one or more of the ordinances or development options discussed in this article may go a long way in reducing the environmental impacts of new development on your community.

Endnotes:

¹See www.epa.gov/owow/wtr/watershed/proceed/coffman.html and www.dnr.state.mo.us/deg/swcp/faqs/wcp.htm for helpful discussions.

²See MSD Resolution No. 2235 (January 1997).

³*Heins Implement Company v. Missouri Hwy. & Trans. Comm'n*, 859 S.W. 2d 681 (Mo. Banc 1993).

⁴See "Creeks in Revolt: Urban streams

should flow naturally. Why don't they?", *Missouri Conservationist*, December 1998, Vol. 59, Issue 12, discussing the effects of development on urban streams and the need for "stream-friendly" planning and zoning regulations.

⁵Although the specific legal authority and legal limitations for adoption of these ordinances is beyond the scope of this article, municipalities have specific zoning and police power authority that encompasses many of these regulations.

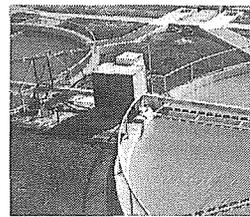
⁶See "Tree Conservation Ordinance," American Planning Association Report No. 446 (1993).

⁷See RSMo Section 67.870-910 (applicable to certain counties). The Missouri Department of Conservation also recently created a land trust for such purposes. □

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