

Clearing and Grading Regulations Exposed

Perhaps the single most destructive stage in the development process involves the clearing of vegetative cover and the subsequent grading of the site to achieve a more buildable landscape. The potential impacts to a stream and its watershed in this stage are numerous and profound. Trees and topsoil are removed, and soils are exposed to erosion. Heavy equipment compacts underlying soils, reducing their capability to infiltrate rainfall. Steep slopes are cut, and the natural topography and drainage of the site is altered. The existence of buffers and environmentally sensitive areas are at risk from clearing or erosion.

For many years, local governments have recognized the environmental consequences of poor clearing and grading practices and have adopted a series of regulations during this phase of development. These diverse regulations include restrictions on clearing steep slopes, requirements to install sediment controls, and requirements to revegetate exposed soils or protect existing trees.

Corish (1994) analyzed the quality and effectiveness of these regulations in a detailed survey of 43 local government programs across the country. In most communities, these regulations had been on the books for 10 years or more (68%) and had seldom been revised (only 33% of all programs had been revisited, usually to strengthen tree protection requirements). Her study indicated that many local clearing and grading programs could stand significant improvement. The results are summarized in Table 1. Key findings include the following:

Inadequate Revegetation of Cleared Sites

While nearly all programs required that exposed soils must be revegetated after final grading (88%), the survey results indicate that this may not be a rapid or successful operation. For example, one-third of all programs did not impose any time limit for the permanent revegetation of the site, thereby increasing the chances for soil erosion to occur. Communities that did impose a time limit were rather generous, as over two-thirds allowed more than three weeks for revegetation. Even so, 44% of the programs indicated that soils were often still exposed after their prescribed time-limit expired. Problems were also routinely encountered in establishing good cover after revegetation occurred—56% of

local programs surveyed indicated that revegetation efforts were frequently unsuccessful due to poor planting or seeding techniques.

Few Limits on Excessive Clearing

Few communities have sought to actually prevent excessive clearing and grading at the site. Instead, they primarily focus on the control of erosion *after* it occurs (e.g., through vegetative stabilization, sediment traps and other controls). For example, only 17% of all programs specified that a portion of the site may not be cleared or graded. Even less (15%) indicated that their ordinance required a developer to phase or sequence construction so as to reduce the length of time that the entire area is exposed to erosion. Only 36% of programs

Table 1: Clearing and Grading Report Card, N = 43 (Corish, 1994)

Program element	Percentage reporting
Preserved trees are not adequately protected	57
Sensitive areas are not adequately protected	49
Too much land is needlessly cleared	24
A minimum portion of site must remain undisturbed	17
E&S controls are not adequately maintained	67
Required revegetation is unsuccessful	56
No time limit for revegetation is imposed	33
A time-limit greater than 20 days is imposed	33
Land remains unvegetated after time limit expires	44
Clearing or grading in floodplains, erodible soils, stream buffers or riparian areas is prohibited in their ordinance.	40 or less
Clearing of steep slopes is prohibited by law	36
Cleared slopes are not adequately protected	44
Slopes are cut more than authorized on plan	26
They require practices to prevent soil compaction	28
Soil compaction is a severe problem at the site	28
They encounter few problems during construction	18
As-built topo survey is required for compliance	28
Preconstruction inspections used to define limits of disturbance	40

prohibited clearing on steep slopes that generate the greatest erosion rates and sediment yields. Very few communities (less than 40%) specifically restricted clearing in floodplains, riparian areas, stream buffers and erodible soils. A clear implication is that most local clearing and grading regulations could be vastly improved if they devoted as much attention to reducing clearing as they do to controlling erosion.

Rampant Problems During Construction

The survey indicated that 82% of communities encountered major problems in the field during construction. The most common problems were poor installation and maintenance of ESC practices (67%), inadequate protection of trees or vegetative cover (57%), poor delineation of areas requiring revegetation or stabilization (51%), inadequate protection of buffers and environmentally sensitive areas (49%) and inadequate protection of cleared slopes (44%).

While 75% of all programs devote resources to periodically inspect sites after construction begins, a much smaller percentage (40%) conduct a preconstruction walkthrough to delineate limits of disturbance. Again, while most programs will immediately stop work if a developer lacks an approved clearing and grading program, only 60% require that the developer post a performance bond to ensure that the clearing and grading is done according to plan. Even fewer programs (28%) require that an as-graded survey be submitted to objectively document satisfactory performance.

The survey clearly underscores the need to revisit clearing and grading ordinances in many communities to: minimize excessive clearing; increase the speed and success of revegetation; continually to improve the implementation of erosion and sediment control practices. The checklist referenced in Table 2 is a useful starting point for this important exercise. — **TRS**

Reference

Corish, Kathleen. 1994. *Clearing and Grading Guidance: A Guide to Improving Clearing and Grading Regulations Through Non-Structural Best Management Practices*. Metropolitan Washington Council of Governments. Washington, D.C. 48 pp.

Table 2: A Checklist for Evaluating the Effectiveness of Local Clearing and Grading Ordinances

Does the ordinance require revegetation within 15 days during growing season? — and mulch/straw stabilization in non-growing season?
Does it contain any criteria to measure the success of revegetation efforts?
Does it clearly prohibit clearing or grading within the 100 year floodplain, wetlands, stream buffers, and erodible soils?
Does it require that the areas above are protected by fencing or signs during construction?
Does it require a minimum area of the site remain uncleared?
Are there any incentives provided to developers to minimize the extent of forest clearing? (e.g., footprinting)
Are special erosion control practices required when slopes exceed 10 to 15%?
Is clearing prohibited on slopes >25%?
Are roads and other structures located along natural contours?
Does the ordinance require phased construction on larger development sites to reduce the duration of soil exposure?
Does it contain any mechanism to minimize soil compaction during construction, especially near trees?
Does it contain provisions to conserve forests and protect individual trees during the construction process?
Are there any measures to preserve existing topsoil?
Is a preconstruction walk through required to delineate the limits of disturbance?
Are performance bonds required to assure proper compliance and successful revegetation?