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LOW-IMPACT DEVELOPMENT SAVES MONEY AND EXPEDITES APPROVALS

*“Go green” and save
your project’s bottom
line at the same time.*

July 2009



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Newly adopted local, county, state and federal stormwater ordinances have placed

additional demands on the land development community. But a powerful synergy of this “water quality movement” is that you may be able to “go green” and save your project’s bottom-line at the same time.

Developers and property owners throughout the United States and right here in Pittsburgh are taking advantage of new low-impact development techniques which can save money and quickly move projects through the approval process.

Low-impact development, also referred to as sustainable or green design, replaces stormwater management practices with sustainable practices that include rain gardens, bioswales, infiltration ponds, roof gardens, rain barrels, permeable pavement and others.

Depending on site-specific conditions, the following benefits can be realized on a variety of developments including commercial, residential, industrial, mixed-use and others.

Save on Construction Costs

Low-impact development practices that are conducive to a particular site can save money for developers, property owners, and communities, while protecting and restoring water quality.

The U.S. Environmental Protection Agency (EPA) has concluded that capital cost savings can range from 15 to 80 percent when low-impact development methods are used versus conventional stormwater management practices.

Using low-impact development techniques can significantly reduce the cost of site grading and preparation, stormwater infrastructure, site paving and landscaping. For example, conventional practices for a typical commercial project specify that an underground detention system, consisting of large-scale diameter pipes, should be installed under the parking area to control the runoff from 2-, 10-, 25- and 100-year storms. Low-impact development principles, however, suggest that the parking area be reduced and a 2-foot deep shallow depression be constructed to control runoff, while incorporating the depression into the project’s overall landscape. This approach alone can save hundreds of thousands of dollars by reducing paving costs and eliminating the need for large, costly underground structures, all while increasing the aesthetics of the site. Additionally, the parking lot runoff can be sheeted to the depression, saving the cost of inlets and a piped conveyance system.

An example of saving construction costs using low-impact development techniques can be found at Black Walnut Estates in South Fayette Township, Pa. Rather than designing the roadway as a typical residential street having a cross slope to both sides of the road, the road at Black Walnut Estates was sloped to only one side, and vegetated swales were chosen over traditional curbing,

inlets and piping. The cost of materials and labor for the channel installation was much less expensive than constructing an inlet conveyance system.

Cost savings were also realized with the use of low-impact development techniques at a Fed-Ex Ground location in Dubois, Pa. The number of inlets was minimized by sheeting flow to vegetated areas, removing curbing in appropriate locations, and replacing a large, expensive separator with the more natural approach of a constructed filter in the pond.

Gain Timely Project Approvals

A project can be moved through the approval process quickly by demonstrating low-impact development techniques that meet water quality requirements.

In the Township of Elizabethville, Pa. a waiver concerning the Township's requirement for the curbing of all parking lots and roads was granted for a new Tractor Supply development. The waiver was granted after demonstrating that the design principle of allowing water to sheet flow from the impervious areas to pervious areas would accomplish the same water quality requirements. As a result, significant curbing around the approximately 3-acre impervious area was eliminated as part of the design.

The design calls for collecting runoff in a swale and a shallow depression off the edge of the pavement. This technique reduced the amount of storm inlets and piping needed, saving construction costs. Additional cost savings were realized by disconnecting impervious areas from direct piping, slowing the water down, and decreasing the size of the detention required, all while meeting the water quality requirements of the Township and the Pennsylvania Department of Environmental Protection.

Maximize Developable Area

Another highly desirable advantage of low-impact development is the potential to maximize developable area that otherwise may be lost to stormwater infrastructure (such as a retention pond that is needed to treat stormwater).

On the Black Walnut Estates project, identified earlier, rather than constructing a traditional stormwater management pond to treat stormwater, individual rain gardens were designed for each lot. This provided another buildable lot in the area where a stormwater management pond would have otherwise been built. In addition to maximizing developable area, cost savings were realized by saving an additional buildable lot and avoiding the expense of constructing a large, universal detention pond.

Depending on site-specific conditions, low-impact development can provide many clear advantages over conventional stormwater management practices – construction cost savings, maximized developable area, timely project approvals and environmental preservation.

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