

ENGINEERING

Stormwater Compliance in NY's Urban Environment

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The New York State Department of Environmental Conservation (NYSDEC) Phase II stormwater regulations, which went into effect in 2003, set higher standards for minimizing erosion and sediment impacts from construction activity. Maintaining compliance with these regulations can be a relatively straightforward process if developers understand their



responsibilities from the beginning and incorporate the required measures into their site designs. However, some developers are not aware that they must comply with these regula-

tions, which can lead to design changes, change orders, permitting complications, and/or fines that may hamper your project. Early coordination among the developer, site engi-

neer, and contractor proves the most effective way to avoid these complications and keep projects on track.

Generally, the Phase II regulations apply if a private developer disturbs more than one acre of land on a construction site that discharges into a separate storm sewer or surface water body. They require that the developer obtain a State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-02-01), a process that involves preparing a Stormwater Pollution Prevention Plan (SWPPP) and ensuring that the stormwater prevention measures are implemented, inspected, maintained, and properly documented. The SWPPP has three basic components: an Erosion and Sediment Control Plan for the temporary construction period, a Water Quality Control Plan describing the permanent water treatment measures, and a Water Quantity Control Plan describ-

ing the permanent peak flow and volume control measures.

Many Developers are aware of the Erosion and Sediment Control component of the SWPPP; however, some have been caught off-guard with the second and third components of the SWPPP – permanent Water Quality and Quantity Controls – and how they apply to urban projects. Some assume that once they meet local requirements, such as the New York City Department of Environmental Protection (NYCDEP) on-site stormwater detention measures, their responsibilities for stormwater management are done. This is not true. Generally, if you exceed one acre of disturbance and your site drains to a surface waterbody or a separate storm sewer, then the Water Quality and Quantity Controls apply to your site (there is an exception for small single family residence projects).

Another misconception is that the regulations apply only when there is an increase in impervious area (i.e. buildings or pavement) on a site. This also is untrue.

For Water Quality Control, the required on-site treatment volume depends on the final amount of impervious area on the site, regardless of the site's previous condition. Due to these more stringent and complicated requirements, it may be necessary to develop more creative drainage designs that will satisfy both Local and State stormwater regulations, even for Water Quality and Quantity Control on urban projects.

In the suburban/rural setting, compliance with the Water Quality and Quantity Control requirements can be achieved with practices such as detention or retention ponds, wetlands

and/or open channels. In the urban environment, meeting the Water Quality and Quantity Control requirements can be more difficult since space is literally at a premium and these urban sites generally have more impervious area with less space for stormwater management. In the urban environment, stormwater control efforts typically focus on underground infiltration practices to achieve our Local (NYCDEP) and State (NYSDEC) permitting goals. With underground infiltration and storage, the required stormwater management volumes can be both treated and detained.

Another approach is to incorporate an interconnected infiltration drywell or underground perforated piping system with a controlled overflow to the separate storm sewer. This type of system combines water quality treatment function with water quantity detention and peak flow control. Plus, these designs do not utilize aboveground space and can be constructed under parking lots. On another waterfront property, where the site drains directly to the East River, we have designed a drainage system that incorporates an underground perforated pipe system with the overflow connected to a spreader swale.

The grassed spreader swale directs stormwater drainage away from the buildings and roadways while treating the water, encouraging infiltration, and spreading the flow to avoid a direct point source discharge.

All of these stormwater control measures are most effective – and most cost-effective – if they are identified and designed early in the site planning process.

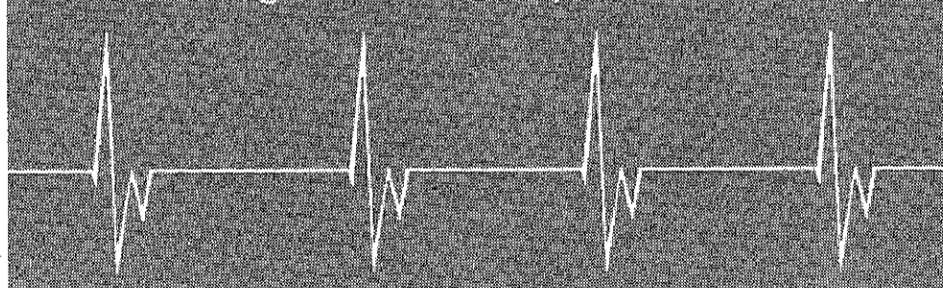
Thinking ahead and incorporating specific design options into the site plan will make the permitting and construction phase a much smoother and easier process. ■

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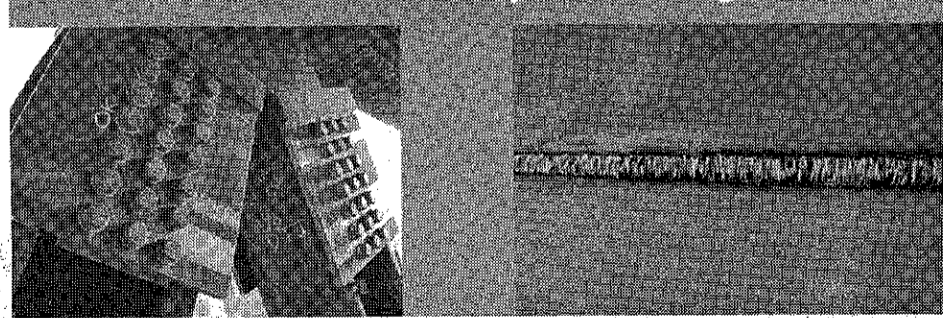
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ICON finds elevator solution at impossible NJ work site

Nordic Contracting Co., Inc., of Ledgewood, NJ, was hired to install a new 3Bay concrete elevator shaft for the Englewood Hospital, Englewood, NJ. However, inadequate site access, coupled with hard clay soil conditions, presented a major obstacle to Nordic's crew.

The Icon Group, a leading underground engineering and distribution company, based in East Brunswick, NJ, designed a tight sheeting 2 Bay slide rail system, 35' long x 20.5' wide x 16"-24' deep, for the project. Icon's Head Field Technician, Robert Langenbach, was there to provide technical assistance. Access from one side made excavating difficult for the contractor. However, using a mini

excavator inside the pit to break up hard clay and rock was a big help. Icon's slide rail system allowed the contractor's crew to overcome the limited access and overhead clearance problems in an easy and effective way.

Icon's state-of-the-art slide rail system allows a small crew to sheet a tough job, like the 3bay concrete elevator shaft, quickly with minimal training and could save time and money off conventional sheeting. While reducing restoration costs, the Slide Rail system eliminates the need for walers, provides more working room and makes digging easier. The modular design assures flexibility and maximum use of system on all jobs. ■