



**Environmental  
Protection Agency**

**John R. Kasich, Governor**

**Mary Taylor, Lt. Governor**

**Scott J. Nally, Director**

June 27, 2012

RE: CUYAHOGA COUNTY  
CITY OF SOLON  
CONSTRUCTION STORM WATER  
SOLON VILLAGE  
FACILITY PERMIT #3GC05914\*AG

Justin Biegler, P.E.  
Atwell LLC  
30575 Bainbridge Rd, Suite 180  
Cleveland, OH 44139

Dear Mr. Biegler:

On June 6, 2012, Ohio EPA received a request for approval of an alternative post-construction best management practice (post-construction BMP) for the above referenced project. This project will disturb 12.4 acres on a 17.36-acre parcel, consisting of the redevelopment of the existing Solon Village shopping center located at the SE quadrant of SOM Center and Aurora Roads and new development of a Giant Eagle grocery store on contiguous property to the south. Our records indicate that storm water discharges from this project were authorized under the Ohio EPA General National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Associated with Construction Activity #OHC000003.

Part III.G.2.e of this permit requires permittees to seek approval from Ohio EPA to use alternative post-construction BMPs on projects where the larger common plan of development or sale disturbs five or more acres of land. The permit requires permittees to demonstrate that the alternative BMP is equivalent in effectiveness to the standard BMPs approved for general use within the NPDES permit. To demonstrate equivalency, the permittee must show that the alternative BMP has a minimum total suspended solids (TSS) removal efficiency of 80%. In addition, the discharge rate of the Water Quality Volume (WQv) must be reduced to prevent stream bed erosion and protect the physical and biological stream integrity where hydrologic impacts of the discharge are not deemed negligible. This project does not meet any of the conditions where Ohio EPA deems hydrologic impacts to be negligible. Thus, control of the discharge rate of the WQv is required for this project in addition to the 80% TSS removal efficiency.

This project proposes to use two StormTech underground detention systems as an alternative means to meet post-construction requirements of the NPDES permit. One system will serve the redevelopment portion of the project and a separate system will serve the new development portion. The StormTech systems will include the isolator rows for pollutant removal as well as a weir plate in the outlet structures controlling the discharge from the underdrains to provide detention and a 48-hour drain time for the WQv. Thus, the systems are generally designed as underground extended detention structures.

The StormTech system with isolator row has been tested by the University of New Hampshire Stormwater Center, one of the nation's leading storm water BMP research centers, and has achieved 80% TSS removal, as required by the NPDES permit. However, in comparing the design of the system tested at UNH to that proposed for this site, Ohio EPA noted an inconsistency that may lead to reduced system performance. In particular, the system tested at

UNH is built on a stone base composed of 12 inches of crushed stone. The proposed system only provides a 6-inch stone base. Although the proposed system provides some sections where the depth of the stone base is increased to 16 inches for a "forebay" and "micropool", Ohio EPA questions whether this alternative design will provide the same TSS removal efficiency as the tested system at UNH. Please provide a rationale as to why the stone base of the proposed system is being reduced by 50% over the tested system and why you feel this will not adversely affect pollutant removal efficiency in the proposed system.

Further, Ohio EPA reviewed sizing calculations, as they pertain to the WQv, for the StormTech systems. We found that the WQv has been calculated appropriately for the new development portion of the project. However, the calculations for the redevelopment portion of the project show that the system provides extended detention for 20% of the WQv associated with the redevelopment area less 5.7% credited for reduction of impervious area. A review of the plans indicates that impervious area is being reduced due to additional or enlarged parking lot islands. The plan indicates that the parking lot islands will be grassed and landscaped but does not provide detail. Ohio EPA is concerned that these islands may not provide a meaningful reduction in impervious area. In allowing the reduction of impervious area to be used as a method to meet post-construction requirements for redevelopment projects, it was the agency's intent that these areas would allow storm water to infiltrate, be absorbed by vegetation or otherwise prevent storm water from becoming runoff. Thus, at a minimum, Ohio EPA would like some assurance that these parking lot islands will have absorptive value. This can be demonstrated by ensuring underlying soils within parking lot islands are scarified to promote infiltration. In addition, soils should not be compacted, providing a minimum of four to six inches of topsoil. Or, you may elect to construct some parking lot islands as bioretention cells to treat up to 5.7% of the WQv associated with the redevelopment area, i.e., treat 1,664 cubic feet through the use of bioretention. This may require modification to storm water drainage systems and/or site grading to accommodate, but is a preferred solution due to the multiple benefits that low-impact development practices like bioretention provide. Another option to consider is providing a permeable pavement system for up to 5.7% of the parking lot within the redevelopment portion of the site.

Please review my comments and provide me with a letter of response indicating how you intend to address my concerns. A response must be received before Ohio EPA can approve the use of these alternative post-construction BMPs for this project.

If you have any questions, please contact me at (330) 963-1145.

Sincerely,



Dan Bogoevski  
District Engineer  
Division of Surface Water

DB/cs

cc: Phillip Bishop, Echo Solon LLC (701 Alpha Dr., Pittsburgh, PA 15238)  
John Busch, P.E., Engineer, City of Solon  
Todd Houser, Cuyahoga SWCD