Exhibit D

Scientists, Engineers & Environmental Planners Designing Innovative Solutions for Water, Wetland and Soil Resource Management

4 March 2011

Jaclyn Rhoads, Director for Conservation Policy
Pinelands Preservation Alliance
17 Pemberton Road
Southampton, NJ
08088

RE: Proposed Walmart Store #1844-05
Block 44, Lots 2, 3, 5 & portion of Lot 4
Township of Manchester and
Block 505, Lots 14 & 15
Township of Toms River
NJ State Highway Route 37 & Northampton Blvd.
Ocean County, NJ

Dear Mrs. Rhoads:

Princeton Hydro, LLC has had an opportunity to conduct a review of the proposed site plans and related supporting documentation for the proposed Walmart in Manchester and Toms River Townships. Our review was focused on the analysis of the potential water resource-related impacts of the proposed project. As such we have focused on the proposed stormwater management system as described in the site plans and supporting stormwater management report. Our review of the documentation includes an assessment of the application's compliance with applicable State stormwater regulations. Additionally, as based on our extensive experience in the design and analysis of stormwater management systems, we also assessed the overall functionality of the proposed stormwater management system. Given the project's location within the Barnegat Bay watershed, which is widely documented as a nitrogen impaired water body, we paid particular attention to evaluating the likely water quality impacts of the proposed development to Barnegat Bay and the potential mitigation provided by the proposed stormwater management system.

Please note, that our review of the project material revealed significant deficiencies in the proposed stormwater management system. These deficiencies directly compromise the project's compliance with State stormwater regulations. Additionally, our analysis indicates that the proposed development will result in a 633% percent increase in total nitrogen (TN) loading to Barnegat Bay.

The materials reviewed by Princeton Hydro in the preparation of this report consisted of the following:

1. Preliminary and Final Site Plan & Minor Subdivision for Wal-Mart Real Estate Business Trust Proposed Walmart Store (#1844-05) New Jersey State Highway Route #37 & Northampton Blvd Block 44, Lots 2, 3, 5 & Part of Lot 4, Manchester Township, and Block 505, Lots 14 & 15, Toms River Township, Ocean County, New Jersey, Pages 1 - 29, Dated June 26, 2009, Prepared by Bohler Engineering.
2. Stormwater Management Report for Walmart Store #1844-05, Block 44, Lots 2, 3, 5 & Part of Lot 4, Manchester Township, and Block 505, Lots 14 & 15, Toms River Township, Ocean County, New Jersey, Dated August 2009, Revised January 2010, Prepared by Bohler Engineering.

1.0 Project Overview

The site is currently heavily wooded. It is characterized by relatively flat terrain and sandy soils; conditions typical of its location within the New Jersey coastal plain. The south western portion of the site contains wetlands as confirmed in the Letter of Interpretation obtained from the NJDEP (File No. 1500-04-0001.1). USDA soil mapping of the site indicates that the upland portions contain Lakewood soils and the lowland portions contain Mullica soils; generally consistent with the information contained in the wetland delineation materials. Intermediate (transition) portions of the site contain the Lakehurst series soil.

The proposed project entails the construction of a ±200,000 square foot Walmart store with associated parking areas (833 spaces) and drive aisles. The proposed project will result in the creation of approximately 14.7 acres of new impervious surfaces. As noted above, given that the site is currently wooded, this change in land use is significant and sets the stage for marked changes in the site's post-development hydrology, hydraulics, groundwater recharge and pollutant loading.

2.0 Proposed Stormwater Management

The proposed stormwater management system will involve the creation of a series of above and below ground stormwater basins and the installation of a single manufactured treatment device (MTD). The engineer's analysis of the proposed system relies on stormwater infiltration as the primary means of demonstrating the project's compliance with applicable State and local stormwater management requirements. These requirements include post construction peak flow rate control, groundwater recharge, and stormwater quality improvement.

Our analysis of the proposed stormwater management system indicates that the applicant has *not* demonstrated compliance with State stormwater regulations including post construction peak flow rate control, groundwater recharge, and stormwater runoff quality standards. These deficiencies are primarily related to the engineer's gross overestimation of the infiltration from the proposed stormwater management facilities. It is our professional opinion that under post construction conditions the proposed stormwater management system will not satisfy State stormwater requirements and could lead to

increased downstream flooding and property damage, nuisance ponding conditions and mosquito breeding habitat, decreased groundwater recharge, and significant downstream water quality impacts.

The proposed stormwater management system is detailed in the following sections.

1. General Stormwater Management Approach

The stormwater management approach employed by the engineer is an end-of-the-pipe strategy that relies primarily on a single centralized basin. While the plan does include a total of seven basins, approximately 60% of the site's total proposed impervious area drains to just one basin (Basin#1). Section 7:8-5.3 of the New Jersey Administrative Code (NJAC) outlines the nonstructural stormwater management approaches that should be implemented to the maximum extent practicable. In order to demonstrate compliance with this section, the NJDEP provides a Nonstructural Strategies Point System (NSPS) spreadsheet. The engineer has completed the spreadsheet, and the results confirm that the design does *not* satisfy the nonstructural stormwater management strategies requirement as set forth in NJAC 7:8-5.3.

2. Calculation Methodology

The engineer uses standard hydrologic/hydraulic software tools to conduct the pre and post-construction drainage analyses. Due to the coastal plain site location, relatively gentle topography, and sandy soils the engineer applied the DelMarVa unit hydrograph to determine pre-construction peak flow rates. Usage of the DelMarVa unit hydrograph is "primarily restricted to areas that have slopes less than 5%, permeable soils and are characterized by "ponded" topography capable of capturing and holding some degree of precipitation prior to runoff occurring."[1] Under the post-construction conditions the developed drainage areas will consist of impervious surfaces (parking areas and rooftops), which will be connected to the basins with a system of inlets and stormwater conduits. The permeable soils will be covered, surface depressions eliminated and any existing natural swales replaced with a site-integrated stormwater collection and conveyance system. Under these conditions the NRCS Standard unit hydrograph should be applied, not the DelMarVa unit hydrograph. This will result in substantially higher post development peak flow rates than those presented in the applicant's stormwater report.

For the purpose of modeling post-development inflow hydrographs to the surface basins, the entire basin area should be considered an impervious surface. The engineer does not make this assumption, which results in an underestimation of post-construction peak flow rates and volumes.

[1] New Jersey Department of Agriculture State Soil Conservation Committee, Engineering Policies - Technical Bulletin 2004-2.0 Subject: NRCS change in stormwater modeling for the NJ Coastal Plain

3. Infiltration Evaluation

The application's compliance with all three primary State stormwater criteria relies primarily on the infiltration of the collected stormwater runoff by means of the proposed stormwater management basins. Therefore if the basins do not infiltrate as indicated in the stormwater management report, the applicant has not demonstrated compliance with State stormwater regulations. The following explanation will demonstrate that the engineer has not correctly analyzed the infiltration basins and therefore has not demonstrated compliance.

Appendix E of the New Jersey BMP Manual states that a minimum of two test pits should be conducted for a stormwater infiltration basin and for basins larger than 10,000 square feet an additional test pit should be conducted for each additional 10,000 square feet of proposed basin. For proposed Basin #1 this results in a required seven (7) test pits. These additional required explorations are especially justified as the site's compliance relies primarily on the subsurface conditions in the area of the proposed basin. The engineer has conducted only two (2) test pit explorations in the basin. Furthermore, both of the test pits are located in a down-gradient location within the proposed basin (from a groundwater perspective). Therefore the Seasonal High Water Table (SHWT) observations summarized in the stormwater management report are expected to under predict the most limiting conditions in the basin. Higher SHWT elevations are expected in the up-gradient north east section of the basin where no test pits were completed. The underground infiltration basin (Basin #3) also only had two test pits completed in the area proposed for the basin; where three are required.

As was previously mentioned the site's compliance with all three major State stormwater management is contingent on the proper functioning of the infiltration basins. Two pages of the 527 page stormwater management report are dedicated to the analysis of infiltration from the proposed basins. This documentation states that the basins are designed using Darcy's Law applied for vertical infiltration. The engineer uses the test results along with the required factor of safety to represent the hydraulic conductivity of the soil beneath the basins. It is assumed that the reported test rates are the results of tube permeameter tests. These hydraulic conductivities range from 2.5 to 10 in/hr after the factor of safety is applied. Relatively speaking these values are high, however the soils at the project site are characterized by coarse grained materials and consist primarily of sand. Therefore the projected hydraulic conductivity values are not unexpected.

Darcy's law states that the flow of groundwater is a product of the hydraulic conductivity (generally considered a constant) and the hydraulic gradient. The hydraulic gradient will vary depending on the groundwater conditions between the points where Darcy's Law is being applied. The hydraulic gradient is the driving force in groundwater flow and represents the change in hydraulic head over a distance. In order to simplify stormwater calculations, the engineer assumes a "minimum" hydraulic gradient of one (1). This is a commonly applied practice which generally results in a somewhat conservative approximation of the hydraulic gradient

for the analysis of ponded infiltration from stormwater basins (often 10 to 20% less than average hydraulic gradients when the depth of ponded water is considered). The unit hydraulic gradient assumption is also referred to gravity controlled flow where the influence of ponded water and unsaturated soil moisture potential are not considered.

However, the engineer has failed to account for the central and most fundamental/critical assumption when applying a unit (one) hydraulic gradient. Using a hydraulic gradient of one assumes that the underlying groundwater will not mound into the basin bottom and that unsaturated conditions will exist between the basin bottom and the underlying groundwater table[2]. The engineer states within the report that the "minimum" hydraulic gradient is one. However, if the soil between the basin bottom and the groundwater table becomes saturated during a storm event the hydraulic gradient will be zero (0) and the infiltration from the basin will be independent of the hydraulic conductivity and will be zero; no infiltration.

The engineer has not considered these conditions and instead assumes that the basins will be capable of infiltrating a depth of water ranging from five (5) and twenty (20) feet in a single day.

The occurrence of this condition depends primarily on the separation distance between the infiltration basin and the SHWT. The majority of the basins have the State required *minimum* separation of two (2) feet. This criterion is directly from the NJ Stormwater BMP Manual and was implemented by the NJDEP primarily for water quality protection purposes. Additionally, this *does not* imply that a basin which is constructed within two feet of the SHWT will function (infiltrate) properly.

The most basic method of determining if an infiltration basin will be prone to failing due to inadequate separation from the groundwater table is to determine how much runoff the unsaturated zone between the bottom of the basin and the water table can actually store. For Basin #1, which has the minimum separation of two feet plus a six inch sand layer, the 1.3 acre basin can store approximately 0.65 acre-feet (210,000 gallons) of water in this unsaturated zone before the vertical hydraulic gradient will be reduced to zero and infiltration will cease. The engineer failed to perform this basic calculation. Instead, the engineer assumed that the basin will continue to function throughout the duration of the modeled storm events at a rate of five (5) feet per day.

For example the calculations indicate that 6.2 acre-feet of runoff will infiltrate from Basin #1 during the 100 year storm. Based on the engineer's improper assumption of the hydraulic gradient this represents a potential over estimation of the infiltration volume by 850%.

[2] Environmental Soil Physics, Daniel Hillel, 1998 Academic Press

Under post-construction conditions this excess runoff will not infiltrate, but will runoff through the outlet structure and contribute to downstream flooding. The excess runoff will aggravate any existing downstream storm sewer capacity problems or create new capacity issues. This potential 850% increase in runoff volume over what the engineer has predicted will increase the post-construction peak flow rate and will likely exceed the allowable values resulting in the site failing to comply with the State regulations.

A more detailed determination of the propensity for the basin to fail due to insufficient separation from the groundwater table could have been performed through the application of a basic mounding analysis. As part of this review we have conducted a basic mounding analysis using the reported hydraulic conductivity for Basin #1 and reasonable estimates for other input parameters based on the engineer's documentation[3]. The analysis uses the 100 year storm routing data summarized in the stormwater management report (drain time, infiltration volume, etc).

Our analysis indicates that a 23 foot groundwater mound will form during the 100 year storm event as summarized in the stormwater management report. Therefore the engineer's assumption of a unit hydraulic gradient would only be valid for the 100 year storm if the basin were constructed 23 feet above the SHWT. The basin is currently proposed with a maximum separation of only 2.5 feet.

4. Peak Flow Control Compliance

As previously discussed the project's peak flow compliance is contingent on the engineer's analysis of infiltration in the proposed basins. As discussed in the previous section, the analysis proposed by the applicant's engineer is significantly flawed. In an effort to demonstrate peak flow control compliance the engineer has grossly overestimated the infiltration provided by the basins during all three design storm simulations. Consequently the engineer has not demonstrated peak flow compliance for the proposed project as required in NJAC 7:8-5.4(a)3.iii.

Failure to properly account for increased peak flow rates will create downstream storm sewer capacity problems and will increase the frequency and magnitude of downstream flooding and associated property damage. Additionally, the failure of the basins to properly drain between events exacerbates their stormwater management capabilities when ever the full stormwater storage capacity of the basins is not available at the onset of a storm event. Given the overestimation of the basins' infiltration capabilities, this is likely to occur on a regular basis.

5. Groundwater Recharge Compliance

In an attempt to satisfy the State groundwater recharge requirements the engineer has compared the two-year runoff volumes under pre- and post-construction conditions.

[3] Simulation of Groundwater Mounding Beneath Hypothetical Stormwater Infiltration Basins, USGS Scientific Investigations Report 2010-5102, Glen Carleton, 2010.

Based on the calculations in the stormwater management report, the post-construction conditions will result in a decrease in runoff volume compared to pre-construction conditions. This analysis is *completely* based on the engineer's assumption of a unit hydraulic gradient, which has been demonstrated herein as inappropriate and inaccurate. Therefore the applicant's engineer has not demonstrated compliance with the State groundwater recharge requirements as set forth in NJAC 7:8-5.4(a)2.i.

If the groundwater recharge requirements are not met, the project will result in decreased groundwater recharge under post-construction conditions. This will have a direct impact on the nearby environmentally sensitive areas (wetlands) and will result in decreased groundwater levels which can adversely impact well water withdrawals from nearby wells both from a quantity and quality standpoint due to potential salt water intrusion in the unconfined aquifer.

6. Stormwater Runoff Quality Standards Compliance

The stormwater management report states that "Water quality for the proposed development is achieved by storing and infiltrating the entire water quality design storm in the proposed detention/infiltration basins..." However, this assertion is also based on the basins operating (infiltrating) at a rate of between 5 and 20 feet of water per day, which we have concluded to be a flawed assumption. For example, the water quality calculations for Basin #1 indicate that there will be 0.70 acre-feet of inflow during the water quality design storm, which exceeds the unsaturated storage beneath the basin and will result in overflow from the basin. Therefore the engineer has not demonstrated compliance with the State runoff quality standards as dictated by NJAC 7:8-5.5.

As such, it is our professional opinion based on the data and supporting information presented by the applicant, that water quality impacts will result due to the proposed project and that these impacts will further exacerbate downstream water quality impairments. This is in no way consistent with the NJDEP's initiatives for the protection and improvement of the water quality and ecology of Barnegat Bay. This is discussed further in item 7 below.

7. Nutrient Loading Analysis

Barnegat Bay is currently recognized as a nitrogen impaired estuary. This is based on numerous studies of the Bay conducted for over a decade by NJDEP, Rutgers University and others. The Bay is currently the subject of numerous restoration efforts supported by the NJDEP and Governor Christie. The various studies conducted of the Bay show that a primary source of nitrogen loading stormwater runoff from developed areas.

As proposed, the project will result in the conversion of approximately 19 acres of forested land into a highly impervious, intensive commercial land use condition. In efforts to address the nitrogen impairment of Barnegat Bay, the NJDEP has recently adopted nitrogen loading rates for use in the quantification of nitrogen loading. The

loading coefficients are intended to be used with State recognized land use / land cover classifications to generate expected loads on a per area unit basis. Under its existing forested condition the site generates 57 lbs of nitrogen (TN) per year as based on a unit loading coefficient of 3 lbs TN per acre per year. Following the site's development, the annual TN load will increase dramatically to 418 lbs per year, based on a post-development loading rate of 22 lbs TN per acre year. This represents a 633% increase in TN loading relative to existing conditions.

The surface basins proposed for this development consists of a bottom sand layer devoid of any vegetation. The basins will rely mostly on settling and then filtering by the sand media for pollutant removal. The lack of any dense vegetation within the basin inhibits the basins' ability to remove nitrogen or phosphorus as a result of plant assimilation and uptake. Reliance on settling and filtering by the sand severely limits any ability to remove dissolved forms of nitrogen, such as nitrate and ammonium; forms of nitrogen readily assimilated by the planktonic and macro-algae that impact Barnegat Bay and its tributary streams. As such, the engineer has not demonstrated compliance with the State stormwater runoff quality standards. As designed, it is our professional opinion that these basins cannot achieve any significant amount of nitrogen removal. Therefore, we expect a substantial increase in nitrogen loading as a result of this development.

3.0 Conclusions

The proposed development plan calls for the clearing and grading of an existing wooded area. The construction of the proposed Walmart store will result in the creation of 14.7 acres of impervious cover. The development will substantially increase overall nitrogen loading to Barnegat Bay (633% increase).

The functionality of the proposed stormwater management system relies almost entirely on the infiltration capability of the proposed basins. The engineer has failed to properly design these basins based on a misrepresentation of basic groundwater flow hydraulics. Based on the data and information supplied by the engineer, it is our professional opinion that the basins will not operate as the engineer has assumed. This misrepresentation results in the stormwater management system's overall lack of compliance with the State stormwater regulations.

Given the high rate of infiltration predicted by the engineer and the rapid drain time calculations which have been provided for the basins. It is noteworthy that the design calls for low level outlets with valves for the main infiltration basins. It should be clear that the operation of the valves will be a direct violation of the State stormwater regulations and a violation of the Manchester and Toms River Township NJPDES Municipal Stormwater Permits.

It should be noted that Princeton Hydro recently reviewed a similar project in southern New Jersey where the engineer made the same miscalculation with regards to the

hydraulic gradient and the design of an infiltration basin. This situation resulted in the failure of the basin and NJDEP's subsequent issuance on 11 February 2011 of a Stop Work Order. The case is currently under litigation.

It is the municipalities' responsibility to ensure that the proposed development complies in full with the State's stormwater regulations. If the project is constructed and the basins do not function as the engineer has indicated, Manchester and Toms River Townships will be in violation of their NJPDES Municipal Stormwater Permits and may be subject to enforcement actions by the NJDEP.

This completes our review of the application. Please feel free to contact me with any additional questions concerning this report.

Sincerely,

Stephen J. Souza, Ph.D.
President, Princeton Hydro, LLC

Cc: C. Emerson, Ph.D. PE