PIKE TOWNSHIP
BERKS COUNTY, PENNSYLVANIA

ORDINANCE NO. 2011-02

AN AMENDATORY ORDINANCE OF PIKE TOWNSHIP, BERKS COUNTY, PENNSYLVANIA, AMENDING THE PIKE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, AS AMENDED, TO REPEAL ORDINANCE NO. 2007-3, AND TO AMEND SECTION 630, TITLED "WATER RESOURCES IMPACT AND HYDROGEOLOGICAL STUDIES"; SETTING FORTH CRITERIA FOR THE REQUIREMENT OF PREPARATION OF A PRELIMINARY HYDROGEOLOGIC STUDY WHEN ON-LOT WELL(S) AND/OR ON-LOT SEWAGE SYSTEM(S) ARE PROPOSED; PROVIDING REFERENCE SOURCES FOR ESTIMATIONS OF PROJECTED WATER SUPPLY NEEDS FOR A PROJECT; SETTING FORTH GENERAL AND SPECIFIC HYDROGEOLOGIC REPORT REQUIREMENTS; AND CONTAINING PROVISIONS FOR SEVERABILITY, REPEALER, AND EFFECTIVE DATE

IT IS HEREBY ENACTED AND ORDAINED BY THE BOARD OF SUPERVISORS OF PIKE TOWNSHIP, BERKS COUNTY, PENNSYLVANIA AS FOLLOWS:

Section 1. Repeal of Ordinance No. 2007-3. Ordinance No. 2007-3 is hereby repealed in its entirety.

Section 2. Amendment to Subdivision and Land Development Ordinance. The Pike Township Subdivision and Land Development Ordinance, as amended is hereby further amended to add the following provisions:

SECTION 630. Water Resources Impact Study

A. APPLICABILITY

One or two levels of Water Resources Impact Study may be required to assess the potential impact from a proposed development. The Water Resource Impact Study will be required to assess the impact of the proposed development prior to the Final Plan approval. Level 1 will consist of a non-intrusive study that utilizes available information, published values, and inferred hydrogeologic conditions. The inferred hydrogeologic conditions will be based on site location, topography, soil types, and proximity to potential points of impact. Level 2 will consist of a site-specific study utilizing one test well and two observation wells and

performing an aquifer-pumping test in addition to the requirements of a Level 1 study.

Those applications proposing the use of on-lot wells and/or on-lot sewage disposal systems shall require the preparation of a Level 1 Water Resources Impact Study, if they meet one or more of the following criteria:

1. Subdivisions (residential, commercial, or industrial) of three (3) to seven (7) lots. Residential two (2) lot subdivisions are exempt. Commercial and Industrial two (2) lot subdivisions may be subject to a Level 1 Water Resources Impact Study.

2. Any land development with a projected average water use of between one thousand (1,000) and two thousand (2,000) gallons per day.

3. As determined by the Board of Supervisors upon the recommendation of the Township Hydrogeologist, based on factual information or data.

Those applications proposing the use of on-lot wells and/or on-lot sewage disposal systems shall require the preparation of a Level 2 Water Resources Impact Study, if they meet one or more of the following criteria:

1. Any subdivision of eight (8) or more lots.

2. Any land development with a projected average water use of more than two thousand (2,000) gallons per day.

3. Any subdivision of three (3) or more lots with an average lot size of one half (½) acre or less.

4. As determined by the Board of Supervisors upon the recommendation of the Township Hydrogeologist, based on factual information or data.

The Water Resources Impact Study must be completed by or under the supervision of a qualified professional geologist with experience in the practice of hydrogeology. In addition, all such studies shall comply with the requirements of the Pike Township "Drinking Water Well Construction Yield and Abandonment" (Ordinance No. 2011- 01), dated August 17, 2011.

B. PROJECTED WATER USE REFERENCES

Please refer to Section 3(B) of Pike Township Ordinance No. ___ "Drinking Water Well Construction Yield and Abandonment Ordinance," dated August 17, 2011.

C. HYDROGEOLOGIC REPORT REQUIREMENTS

1. General Requirements - All reports shall address all of the requirements found in the Pike Township "Drinking Water Well Construction Yield and Abandonment Ordinancer" (Ordinance No. 2011-01).

2. Technical Requirements

The following considerations shall be included in the report for both a Level 1 and Level 2 Water Resources Impact Study unless otherwise specified and submitted to the Township for review and comment. If special conditions are present on the land proposed for development based on known facts or data identified prior to preparing the report, the Township may require additional information in the Study.

a. A topographical map showing the location of the subject tract, proposed on-site sewage disposal systems and wells. Narrative descriptions of the types of these systems shall also be furnished.

b. A description of the geologic conditions on and around the site that would affect the groundwater recharge rate and the degree of ground water renovation. Such conditions can include, but need not be limited to, closed depressions, sinkholes, high water table conditions, springs, lineaments, faults, outcrops of bedrock, soil mottling, surface drainage into the ground, ghost lakes, etc. The groundwater recharge rate shall be calculated by using:

i. The 1 in 10-year drought rate in Table 6-6 of the Delaware River Basin Commission, "Special Groundwater Study of the Middle Delaware River Basin," Study Area II (1982), Prepared By R.E. Wright Associates, Inc.;

ii. Estimates of groundwater recharge based on stream flow - hydrograph methods: PA (USGS Open File 200s-1333); or

iii. Other methods commonly used and acceptable to the Township Hydrogeologist.

The rate shall be multiplied by the acreage of the site minus any impermeable areas including but not limited to buildings, driveways, discharge wetlands, and surface water bodies and include recharge from any on-lot sewage disposal systems and stormwater infiltration facilities.

c. A map and narrative description of the area that will be impacted from the proposed use of on-lot sewage disposal systems. Such analysis will consider and identify the systems and their dispersion plumes and mixing zones to be calculated from the surface topography and known geologic conditions. The analysis will then describe anticipated water quality/quantity impacts to areas located downgradient and/or along with geologic strike or fault. These anticipated impacts should also consider existing and potential land uses located within the affected area.

d. With respect to Level 2 Studies only, should it be determined that the proposed use(s) would result in a degradation of ground water quality; meaning bacterial contamination or nitrate contamination in excess of the standards of the Pennsylvania Department of Environmental Protection for residential drinking water , or a significant negative quantity impact on the potential ground water uses at nearby properties, as based upon the pump testing required by the "Drinking Water Well Construction Yield and Abandonment Ordinance" (Pike Township Ordinance No. 2011-01), or other contaminant as may be determined based upon proposed usage of property or the factual knowledge of the Township Hydrogeologist, the Level 2 Study should present measures that can be employed to mitigate these adverse impacts. The concentration of nitrates at the property line shall be determined by using a mass balance approach based on the calculated groundwater recharge rate for the site (Section 2. C.2.b., above), the septic loading based on the projected average water use and an effluent concentration of 45 mg/l. The Township's appointed

consultant and/or Township Engineer shall review these mitigation measures any recharge from stormwater infiltration systems and provide recommendations to the Board of Supervisors. The Board may require, as a condition of plan approval, the implementation of any such suggested measures or recommendations made by their professional consultants in an effort to mitigate the adverse impacts identified by the applicant or Township.

A Level 2 Water Resources Impact Study is intended to provide sufficient site-specific information to allow calculation or measurement of impacts from the proposed development to groundwater and surface water quality and quantity. In addition to the Level 1 Study requirements, the following requirements shall be included in a Level 2 Water Resources Impact Study and report. If special conditions are present on the land proposed for development based on known facts or data identified prior to preparing the report, the Township may require additional information in the Study.

a. Prior to initiating the Level 2 Study, the applicant shall submit a testing protocols letter to the Township for review and approval by the Township designated hydrogeologist.

b. Drilling of a minimum of one test well and two observation wells. The wells shall meet the minimum requirements of a Category 1 well, found in the Pike Township "Drinking Water Well Construction Yield and Abandonment Ordinance" (Ordinance No. 2011- 01). Water level monitoring locations shall be established in the nearest accessible wetlands and streams on the property or within one thousand feet (1,000') of the property line if there are no wetlands or streams on the property.

c. The test well(s) shall be pumped at constant rate equal to the total calculated water supply needs of the entire development for a minimum period of 24 hours. The pumping test shall continue until a semi-logarithmic plot (Jacobs method) of drawdown versus time defines a straight line. Multiple test wells, up to the total number of lots, may be pumped concurrently to achieve the required pumping rate.

d. For a minimum of 24 hours before the test, during the test and 24 hours following the test, water levels shall be measured in all the wells on a logarithmic frequency based on standard aquifer pumping test procedures or at a uniform frequency of at least every 5 minutes. Water levels in the nearest accessible wetlands and streams on the property or within 1,000 feet of the property if there are no wetlands or streams on the property shall also be measured before, after, and during the test at a minimum frequency of three times per day. The water levels must be measured for a sufficient period prior to the test to ensure that any impacts from the pumping well(s) can be discerned from background variations.

e. Rainfall and significant weather events during the test shall be recorded and included in the report. The pumping rate shall be monitored, recorded, and controlled to remain within 5% of the target rate throughout the test.

f. The test results will be used to calculate aquifer characteristics of saturated zone, Transmissivity and Storativity. The aquifer characteristics shall be used to predict effects from the development on groundwater and surface water for a 90-day period with no recharge (drought conditions). The latest straight-line portion of the Jacobs plot will be extended to project pumping levels after 180 days to ensure that the pumping level does not fall below the producing zone of the aquifer.

g. A Water Resources Impact Study report shall be submitted to the Township for review and approval by the Township designated hydrogeologist and include all information measured, observed, or collected during the study. The report shall contain a complete narrative evaluating the test results and potential from the development.

Section 3. Severability. If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is

hereby declared as the intent of the Board of Supervisors of Pike Township that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part thereof not been included herein.

Section 4. Repealer. The remainder of the Pike Township Subdivision Land Development Ordinance shall remain in full force and effect, with the exception that all ordinances or parts of ordinances conflicting with the provisions of this Ordinance are hereby repealed insofar as they are inconsistent with this Ordinance.

Section 5. Effective Date. This Ordinance shall become effective on the earliest date allowed by applicable law.

DULY ENACTED AND ORDAINED this 17th day of August, 2011, by the Board of Supervisors of Pike Township, Berks County, Pennsylvania in public session duly assembled.

BOARD OF SUPERVISORS OF
PIKE TOWNSHIP
BERKS COUNTY, PENNSYLVANIA

ATTEST:

Susan Cramp, Secretary

Gary Reider, Chairman

Stefan Helbig, Vice Chairman

Jeffrey Gorrin, Supervisor

I certify that this is a true and correct copy of a Ordinance adopted by the Board of Supervisors of Pike Township, Berks County, Pennsylvania on August 17, 2011.

Susan Cramp (SEAL)
Susan Cramp, Secretary