

TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY

ORDINANCE #2008-05

AN ORDINANCE OF THE TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY AMENDING AND SUPPLEMENTING CHAPTER 159, SUBDIVISION OF LAND, AND CHAPTER 131, SITE PLAN REVIEW, ARTICLE III, APPLICABILITY OF SITE PLAN REQUIREMENTS, WITH THE ADDITION OF REGULATIONS PERTAINING TO THE TESTING OF WELLS

WHEREAS, much of Andover Township is dependent upon private wells for residential drinking water. The use of private wells depends, in turn, upon the maintenance of a certain quantity and quality of groundwater; and

WHEREAS, the Township is underlain by bedrock aquifer systems that range from marginal yielding aquifer systems in terms of water supply potential to moderate yielding aquifer systems; and

WHEREAS, the primary purpose of this Ordinance is to ensure that adequate water supply is available for whatever development or use of land is proposed without adverse impact on neighboring wells, and that groundwater quality will be acceptable for drinking water purposes.

NOW, THEREFORE, BE IT ORDAINED, by the Township Committee of the Township of Andover, County of Sussex and State of New Jersey as follows:

SECTION 1. Chapter 159, Subdivision of Land, is hereby amended and supplemented with the creation of Article VII, Water Supply and Water Quality Requirements, to read as follows:

ARTICLE VII WATER SUPPLY AND WATER QUALITY REQUIREMENTS

§ 159-28. Purpose and intent.

The purpose and intent of this Section is to ensure that:

- A. Residential developments of two or more new lots or dwelling units and all applications for nonresidential uses that will result in total groundwater withdrawals greater than 800 gallons per day and all non-exempt agricultural uses shall demonstrate that adequate water supply is available for the existing and proposed use(s) on site without adverse impacts on neighboring wells and other resources including but not limited to wetlands and streams.
- B. Groundwater quality is acceptable for drinking water purposes (or other intended use in the case of a nonresidential or agricultural application).
- C. The impacts of the proposed withdrawal of the groundwater resource will not interfere with use of the resource by existing proximate users.

§ 159-29. Definitions.

In addition to the Definitions of terms set forth in Article I, Section 159-4, the following additional definitions shall apply to the enforcement and implementation of this Section:

Abandoned well: Any well which is not in use, has been illegally installed or improperly constructed, has been improperly maintained or is damaged, has not been maintained in a condition that ensures that the subsurface or percolation waters of the State are protected from contamination, has been replaced by another well or connection to a public supply, is contaminated, is nonproductive, or no longer serves its intended use pursuant to the State Act.

Abandonment or Decommissioning of a Well: The permanent closure or sealing of a well in accordance with N.J.A.C. 7:9D-3 *et seq.*

Act, State: Refers to the Private Well Testing Act, P.L. 2001, c. 40; N.J.S.A. 58:12A-26 *et seq.*, which applies to buyers, sellers and lessors of certain real property as follows:

- A. All contracts of sale for any real property in which the potable water supply is a private well located on the property, or for any other real property in which the potable water supply is a well that has less than 15 service connections or that does not regularly serve an average of at least 25 individuals daily at least 60 days out of the year, shall include a provision requiring the testing of that water supply for certain parameters as set forth in the Act.
- B. The lessor of any real property in which the potable water supply is a private well for which testing of the water is not required pursuant to any other State law shall test that water supply for certain parameters as set forth in the Act. Testing of the water is required at least once every five years. In addition, within 30 days after receipt of the test results, a written copy of the results must be provided to each rental unit and each new lessee.

Acute Parameter: A parameter in drinking water that has significant potential to have serious and adverse effects on human health as a result of short-term or limited exposure.

Alter: To enlarge, deepen, replace or in any other way change any portion of an existing water supply system. The terms "alteration" and "altered" shall be construed accordingly.

Aquifer: A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield economic quantities of water to wells and springs.

Aquifer, Confined: An aquifer that is overlain by a confining bed (aquitard). The confining bed has a significantly lower hydraulic conductivity than the aquifer. Artesian aquifer is a synonym.

Aquifer, Semi-Confined: An aquifer overlain by a low-permeability layer that permits water to slowly migrate through to the aquifer. Also termed leaky artesian or leaky confined aquifer.

Aquifer, Unconfined: An aquifer in which there are no confining beds between the zone of saturation and the ground surface. Water-table aquifer is a synonym.

Aquifer Test: A three-part test conducted to obtain background, pumping, and recovery data/information from a pumping well and observation wells in order to determine aquifer hydraulic characteristics and assess potential water-level drawdown (well interference) to nearby wells.

Aquifer Test Location: A location(s) most representative of site geologic conditions where the aquifer test shall be conducted to evaluate potential impacts to proximate users of the groundwater resource.

Aquitard: A low-permeability unit that can store groundwater and also transmit water slowly from one aquifer to another (also see Aquifer, Confined).

Applicant: A developer or property owner submitting an application for development or permit to locate, construct or alter a water supply.

Application for Development: The application form and all accompanying documents required by the Andover Township Land Use Ordinance for approval of a subdivision, site plan, planned development, conditional use, zoning variance, or direction of the issuance of a permit pursuant to N.J.S.A. 40:55D-34 or N.J.S.A. 40:55D-36.

Application for Well Permit: The application form and all accompanying documentation required by the NJDEP for approval to locate, construct or alter a water supply.

Board: The Andover Township Land Use Board or Board of Adjustment, whichever land use body has jurisdiction to hear the application for development.

Certified Laboratory: Any laboratory, facility, consulting firm, government or private agency, business entity or other person that the NJDEP has authorized pursuant to the Regulations Governing The Certification of Laboratories and Environmental Measurements, N.J.A.C. 7:18, to perform analysis in accordance with the procedures of a given analytical method using a particular technique as set forth in a certain methods reference document, and to report the results from the analysis of environmental samples in compliance with a NJDEP regulatory program.

Community Water Supply System, Public: A source and distribution system for potable water subject to the requirements of N.J.S.A. 58:12A-1.1 et seq. and N.J.A.C. 7:10-1.1 et seq.

Cone of Depression: The area around a pumping well in which the head (water level) in the aquifer has been lowered by pumping action.

Confining Bed: A body of low hydraulic conductivity material that is stratigraphically adjacent to one or more aquifers.

Contaminant: Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water or soil quality.

Department: The New Jersey Department of Environmental Protection.

Developer: As used in this Section, the legal or beneficial owner or owners of a lot or of any land which is the subject of an application for a permit to locate, construct or alter a water supply or the subject of a development application regulated by this Section, and shall include the holder of an option or contract to purchase, or other person having an enforceable proprietary interest in such land.

Drawdown: The lowering of the water table of an unconfined aquifer or the potentiometric surface of a semi-confined or confined aquifer caused by pumping of groundwater from a well or wells. Drawdown is determined by subtracting the depth to water during pumping from the static water level determined prior to the start of pumping.

Drinking Water Quality Standard: A standard that applies to a constituent or contaminant that is required to be tested pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 *et seq.* including a maximum contaminant level, recommended limits, or in the case of lead, an action level.

Exceedance: The concentration of a constituent or contaminant that is greater than a maximum contaminant level (MCL), action level, standard or recommended upper limit for that given constituent or contaminant.

Fracture Trace: The surface representation of a fracture zone as determined from an analysis of aerial photographs in stereo pair.

Groundwater: Water in the ground that is in the zone of saturation from which wells, springs and stream baseflow (dry weather streamflow) are supplied.

Head, Static: Static head is the height above a standard datum of the surface of a column of water that can be supported by the static pressure at a given point. In a groundwater system, it is composed of elevation head and pressure head.

Hydraulic Conductivity: The capacity of a geologic formation to transmit water. It is expressed as the volume of water at the prevailing density and viscosity that will move in unit time under a unit hydraulic gradient through a unit area measured at right angle to the direction of flow.

Hydraulic Gradient: The change in static head per unit of distance measured in a given direction.

Hydrogeology: The study of groundwater with particular emphasis given to its chemistry, mode of migration, and relation to the geologic environment.

Infiltration: The flow of water downward from the land surface into and through the upper soil layers.

Irrigation System: Equipment including but not limited to pumps, piping, and sprinkler heads used to distribute water to grasses, landscape materials, crops, and other vegetation.

Lot or Lot in Question: For the purposes of this Section, any designated parcel, tract or area of land, whether established by plat or otherwise permitted by law, to be used, developed or built upon as a unit, regardless of the nature of the use contemplated, which is the subject of an application for a permit to locate, construct or alter a water supply or the subject of an application for development that is regulated by this Section.

Maximum Contaminant Level (MCL): The maximum permissible concentration of a constituent or contaminant in drinking water. Maximum contaminant levels shall apply to public and non-public water systems, in accordance with the New Jersey Safe Drinking Water Act, N.J.S.A.58:12A-1 *et seq.* and implementing rules at N.J.A.C. 7:10.

NJDEP: The New Jersey Department of Environmental Protection.

Observation Well (Monitoring Well): A non-pumping well used to observe the elevation of the water table or the potentiometric surface. An observation well is generally constructed similar to a pumping well. Observation wells are also referred to as monitoring wells. Observation wells are required to measure water-level drawdown during the aquifer pumping test and also for the calculation of aquifer hydraulic

characteristics. The specific requirements for observation wells are provided in **Appendix VI - Observation Well Requirements – Well Testing** of this Ordinance.

Parameter: A general standard or scope that includes other terms such as contaminant, constituent, substance, metal, organic/inorganic chemical, and characteristics that are used to designate an analyte, group of analytes, attribute, or physical property.

Point-of-Entry Treatment (POET) Device: A water treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed to the entire house or building. Examples of POET include devices such as calcite filters and ion exchange (water softeners).

Porosity: The voids or openings in rock and soil. Porosity may be expressed quantitatively as the ratio of the volume of openings in a rock or soil to the total volume of the rock or soil.

Porosity, Primary: The porosity that represents the original pore openings when a rock or sediment was formed.

Porosity, Secondary: The porosity that has been caused by fractures or weathering in a rock or sediment after it has been formed.

Porosity, Effective: The amount of interconnected pore space available for fluid transmission.

Potable Water: Any water used, or intended to be used, for drinking and/or culinary purposes which is free from impurities in amounts sufficient to cause disease or harmful physiological effects, and complies with the bacteriological and chemical quality standards of the New Jersey Safe Drinking Water Act rules at N.J.A.C. 7:10.

Private Well: A potable water well that serves or will serve a dwelling unit or nonresidential or agricultural use and is located on the same real property as the dwelling unit or nonresidential or agricultural use.

Property Owner Notification – Nearby Wells and Springs: Appendix VII of this Ordinance outlines the notification requirements and procedures for owners of existing wells and springs within 500 feet of any boundary of the Lot in Question.

Public Notification: A general notice of private well test failures sent by the appropriate local health authority to surrounding and/or neighboring owners of real property. The notification can include recommendations to test for the parameters of concern to the owners of surrounding or neighboring properties served by wells.

Pumping Test: A test made by pumping a well for a period of time and observing the change in water levels (hydraulic head) in pumping and observation wells in the aquifer.

Pumping Test, Constant Rate: A pumping test during which the discharge rate from the pumping well is maintained at a constant rate for the duration of the test.

Pumping Test, Step Drawdown: A pumping test that involves pumping at sequentially increasing rates for fixed time periods.

Qualified Hydrogeologist: An individual who has received a minimum of a Bachelor's degree in Geology at an accredited institution or has completed an equivalent of thirty (30) semester hours of geological education (including at least 2 accredited courses in

hydrogeology) while obtaining a Bachelor's or Master's degree in a related field of engineering or science at an accredited institution. Such a person must also demonstrate eight years of professional work experience in the practice of applying geologic and hydrogeologic principals to interpretation of groundwater conditions and in the running of aquifer tests and the analysis of aquifer test data. The individual shall provide a resume or curriculum vitae to document education and experience requirements.

Recharge Area: An area in which there are downward components of head (water levels) in an aquifer. Infiltration moves downward to deeper parts of an aquifer in a recharge area.

Recharge, Aquifer: The volume of water that infiltrates to an aquifer, often expressed in million gallons per year per square mile or gallons per day per acre.

Recovery: The rate at which the water level in a well rises after the pump has been shut off. Recovery is the inverse of drawdown.

Reporting Laboratory: The certified laboratory responsible for reporting to the New Jersey Department of Environmental Protection a complete set of required information related to the analysis of a private well sample

Secondary Parameter: A drinking water parameter regulated for aesthetic purposes rather than health effects under the Safe Drinking Water Act (hereinafter "SDWA") rules at N.J.A.C. 7:10. Secondary parameters include pH, iron and manganese.

Specific Capacity {Q/s}: The specific capacity of a well is the rate of discharge of water from the well divided by the drawdown of water level within the well. Specific capacity will vary with the duration of pumping. Specific capacity should be described on the basis of the number of hours pumping prior to measurement of drawdown. Specific capacity will generally decrease with increased time of pumping.

Saturated Zone: The zone in which the voids in the rock or soil are filled with water at a pressure greater than atmospheric. The water table is the top of the saturated zone in an unconfined aquifer.

Static Water Level: The depth from ground surface to water in a well prior to the commencement of pumping.

Storage Coefficient (Storativity): The volume of water an aquifer releases or takes into storage per unit surface area of the aquifer per unit change in head. It equals the product of specific storage and aquifer thickness. Also known as storativity.

Tract: See definition of **Lot or Lot in Question**.

Transmissivity: The rate at which water of a prevailing density and viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. Transmissivity equals hydraulic conductivity times aquifer thickness.

Unsaturated Zone: The zone between ground surface and the water table. Pore spaces in the unsaturated zone contain water at pressures less than atmospheric. Also referred to as "zone of aeration" and "vadose zone".

Water Table: The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric. It is defined by the levels at which water stands in wells that penetrate the water body just far enough to hold standing water.

Water Quality Test Failure: An exceedence of an applicable drinking water quality standard of a required test parameter under the Private Well Testing Act. This term includes all applicable maximum contaminant levels or recommended limits, or an action level for lead analysis.

Water Treatment System: A device applied to the drinking water at a house or building for the purpose of reducing contaminants in the drinking water distributed in the house or building. Examples: point-of-entry devices and point-of-use devices.

Well: A hole or excavation larger than four inches in diameter or a hole or excavation deeper than 10 feet in depth that is drilled, bored, cored, driven, jetted, dug, or otherwise constructed for the purpose of removal or emplacement of, or investigation of, or exploration for, fluids, water, oil, gas, minerals, soil, or rock.

Well Interference: The result of two or more pumping wells, the drawdown cones of which intercept. At a given location, the total well interference is the sum of the drawdown due to each individual pumping well.

Well Permit: Refers to a written approval issued by the NJDEP, pursuant to the Well Construction and Maintenance Act Regulations at N.J.A.C. 7:9D, to a licensed well driller which authorizes a licensed well driller of the proper class to construct a well or wells in accordance with the permit.

Well Record: The form provided by the NJDEP that depicts the construction details of a well, which is completed by the well driller subsequent to well permit issuance and well installation.

§ 159-30. Applicability.

The provisions of this Section are applicable to:

- A. All residential developments of two or more new lots or dwelling units and all applications for nonresidential uses involving either the creation of a new water use or a total projected water use or consumption greater than 800 gallons per day.
- B. The provisions of this Section shall not apply to any agricultural wells that do not trigger either a water allocation permit pursuant to NJAC 7:19-2.2 or a water usage certification for agriculture, aquaculture or horticulture pursuant to NJAC 7:20A-2.
- C. Where New Jersey Department of Environmental Protection approval is required for a water allocation permit pursuant to NJAC 7:19-2.2 or a water usage certification for agriculture, aquaculture or horticulture pursuant to NJAC 7:20A-2, the Board's approval shall be contingent upon receipt of the permit or certification, as applicable, as well as compliance with this Section.

§ 159-31. Aquifer test and hydrogeologic evaluation.

- A. The purpose of undertaking an aquifer test and hydrogeologic evaluation is to:
 - 1. Determine if sufficient water is available to supply a proposed residential or commercial development or expansion thereof.

2. Assess the magnitude of water-level drawdown (well interference) impacts on existing and future nearby residential, institutional and commercial wells/springs.
 3. Predict the effect of long-term pumping on water levels in existing and future wells.
 4. Determine the potability of the proposed well source(s) through laboratory testing.
- B. Where applicable pursuant to Section 159-30, the requirements for aquifer testing and hydrogeologic evaluation are as follows:
1. The hydrogeologic evaluation shall include the review of available information including but not limited to published maps and reports, stereo pairs of aerial photographs, New Jersey Geological Survey (NJGS) Reports, and other applicable documents.
 2. An evaluation of the bedrock structure/structural characteristics shall be conducted which shall include an evaluation of the strike and dip of the bedding planes, orientation of faults, joints and fractures, plunges, and trends of folds. Published geological literature may be used, if appropriate and sufficient. The results of this evaluation along with the locations of the proposed observation well(s) in relation to the test well(s) shall be submitted with the aquifer test plan report required below.
 3. In addition, the hydrogeologic evaluation shall include a report of the recommended design, execution and analysis of the aquifer test(s). The data collection shall be designed and evaluated by a qualified hydrogeologist. A geologic and hydrogeologic report containing appropriate maps, well logs, aquifer test data and observation well data shall be prepared and submitted.
 4. The aquifer test shall consist of at least one constant-rate pumping test conducted at a sufficient rate and duration to be able to determine aquifer characteristics such as transmissivity and storage coefficient. As part of the aquifer test, observation wells are to be monitored to determine and evaluate water-level drawdown in these wells (the cone of depression) and aquifer parameters, and predict the effect of long-term pumping on water levels in existing and future wells.
 5. Prior to conducting any aquifer test, a preliminary hydrogeologic evaluation and the aquifer test plan shall be submitted for review and approval by the municipality's consulting hydrogeologist of which the applicant shall reimburse the Township for such services by way of an escrow account.
- C. The procedures for aquifer testing and hydrogeologic evaluation shall be as follows:
1. Submit a "Preliminary Hydrogeologic Evaluation and Aquifer Test Plan" for review and approval by the municipality's consulting hydrogeologist, with copies to the Board.

2. Following the approval of the "Preliminary Hydrogeologic Evaluation and Aquifer Test Plan" by the municipality's consulting hydrogeologist, conduct notification of proximate well/spring owners and prepare selected wells/springs as observation points, as necessary. Proof of notification of proximate well/spring owners shall be provided to the municipality's consulting hydrogeologist and to the Board Secretary and Attorney.
3. Perform the "Three Phases of Aquifer Test", specifically:
 - a. Background Monitoring
 - b. Pumping Test
 - c. Recovery Monitoring
4. Conduct water quality sampling and analysis for required parameters on representative wells.
5. Prepare and submit the "Preliminary Hydrogeologic Report" for review by the municipality's consulting hydrogeologist.
6. Respond to comments from reviewers, finalize report and submit "Final Hydrogeologic Report" to the municipality's consulting hydrogeologist with copies to the Board.

D. The requirements for the aquifer test plan and aquifer test shall be as follows:

1. Prior to conducting an aquifer test, the applicant shall submit to the municipality's consulting hydrogeologist the design of such aquifer test and the qualifications of the persons and firm who will be performing the test.
2. The design of the aquifer test shall be developed based on the required hydrogeologic evaluation, using applicable guidance from "Guidelines for Preparing Hydrogeologic Reports for Water Allocation Permit Application with an Appendix on Aquifer Test Analysis Procedures" NJGS GSR 29 (1992 or most recent edition) or successor document.
3. The aquifer test shall be conducted in three phases: the background phase, the pumping phase, and the recovery phase. **Appendix I - Aquifer Test Procedures** of this Ordinance outlines the procedures for aquifer test design, data collection and reporting.
4. If the Lot in Question is underlain by two or more geologic formations, then an aquifer test will be required for each portion of the Lot in Question underlain by each formation. The test requirements for each formation will depend on the number of lots and anticipated water usage per formation.
5. The aquifer test(s) shall be required to be conducted at the location(s) most representative of site geologic conditions and also

most effective for evaluating the potential impacts to proximate users of the groundwater resource. Where it is not possible to meet both objectives, then a location shall be chosen to optimize the two.

6. Observation wells shall be required to measure water-level drawdown during the aquifer pumping test and also for the calculation of aquifer hydraulic characteristics. The specific requirements for observation wells are provided in **Appendix II - Observation Well Requirements – Well Testing** of this Ordinance.
 7. **Appendix III** of this Ordinance outlines the notification requirements and procedures for notification of owners of existing wells and springs within 500 feet of the boundaries of the Lot in Question. Inadequate notification will require the aquifer test to be repeated after new notice. A form of Notice and Access Agreement are included in **Appendix IV**.
 8. In the event that the preliminary hydrogeologic evaluation indicates that a surface-water and/or groundwater divide separates the Lot in Question, an aquifer test will be required for each side of the divide.
- E. The requirements for the submission of the hydrogeologic report and the evaluation of the results of the aquifer test shall be as follows:
1. A hydrogeologic report must be submitted with each application to which this Section is applicable. This report shall document the design and implementation of the aquifer test and include the following data, information and analysis:
 - a. An evaluation of the bedrock structure/structural characteristics, including an evaluation of the strike and dip of the bedding planes, orientation of faults, joints and fractures, plunges, and trends of folds.
 - b. Calculations of aquifer characteristics such as transmissivity and storage coefficient, calculations of the cone of depression, potential impacts to adjacent well owners, and an evaluation of the long-term sustained yield for the wells.
 - c. All water-level and precipitation measurements obtained during the three phases of the aquifer test in electronic format acceptable to the municipality.
 - d. A detailed hydrogeologic description of the aquifers encountered beneath the Lot in Question and adjacent properties.
 - e. A detailed evaluation of the water-supply demand for an average and peak day. This demand should be supported with information on anticipated population, expected unit density, size of units, lawn and garden irrigation needs, pool filling requirements, and other anticipated water uses.

- f. An inventory of all wells within 1,000 feet of the Lot in Question appended and placed on a base map of the entire Lot. This inventory must be submitted in electronic format acceptable to the municipality.
 - g. Figures depicting site geology, topography, surface water bodies, water-level elevations, groundwater flow, and development plans.
 - h. All laboratory water-quality sampling data tabulated and summarized. A copy of the laboratory reports shall be provided to the municipality's consulting hydrogeologist with one complete copy to the Board. The laboratory reports can be submitted to the municipality's consulting hydrogeologist electronically in PDF format.
 - i. A detailed evaluation of potential impacts from subsurface sewage disposal systems on groundwater quality. A site plan or survey of the Lot in Question depicting topography, actual and planned well locations, septic leach field locations, and fracture trace locations at a minimum scale of 1-inch equals 200 feet should be included. For any and all locations where a fracture or set of fractures intersects one or more wells and/or septic leach fields, a detailed assessment of treatment technologies should be included. The treatment technologies should provide adequate assurances that any and all groundwater pumped from the wells will satisfy Federal and New Jersey Drinking Water Standards (MCLs) and will not be degraded by the septic leach field discharges.
 - j. The hydrogeologic report shall be prepared and signed by a qualified hydrogeologist using applicable sections of GSR 29 (New Jersey Geologic Survey, Guidelines for Preparing Hydrogeologic Reports for Water Allocation Permit Applications, with an Appendix on Aquifer Test Analysis Procedures) or successor document as a guide.
 - k. The hydrogeologic report shall include the name and license number of the well driller and pump installer. The report shall include the names of the persons and firm responsible for collecting the water-level measurements. In addition, the report shall include copies of the completed NJDEP Well Records. **Appendix V** provides a checklist of all items that must be addressed in the hydrogeologic report.
2. The evaluation of the hydrogeologic report and test results shall include consideration of the following, any or all of which will result in a requirement that the test be repeated:
 - a. Precipitation. A test conducted during a period in which 0.5 inches or more of precipitation are recorded at or near the Lot in Question must be repeated or technical documentation provided that the precipitation event had no

impact on water levels 24 hours before, during, and 24 hours after the test.

- b. Background Phase. Antecedent influences (from recent precipitation events, changes in barometric pressure, outside pumping influences, etc.) must be determined, and, if necessary, water-level data from the pumping phase and recovery phase must be corrected. Insufficient data to assess these influences will require repetition of all three phases of the aquifer test.
- c. Pumping Phase.
 - (1) If the pumping rate does not exceed the average daily demand by 120 percent or the peak-day demand cannot be pumped within a 24-hour period, the aquifer beneath the Lot in Question may be deemed insufficient to meet the anticipated demands, and the applicant shall review and adjust the proposed demand and/or extent of development proposed. Some of the alternatives may include:
 - (a) Conducting two or more aquifer tests at discrete locations within the Lot in Question. The total volume of water pumped during the two or more aquifer tests must equal or exceed the proposed 24-hour peak-day demand. This may be particularly applicable where large withdrawals are proposed in low yielding bedrock aquifer systems. Each test must be conducted individually and at no time should two wells be pumped simultaneously.
 - (b) Decreasing the number of proposed lots/dwelling units or amount of nonresidential development proposed or otherwise reducing the amount of groundwater to be withdrawn.
 - (c) Re-arranging the development layout to better fit the availability of groundwater resources.
 - (2) If the pumping rate varies by more than 10 percent of the average flow rate, the entire test shall be repeated.
 - (3) If the pump shuts down during the pumping phase, the entire test must be repeated.
 - (4) If water levels in the pumping and/or observation wells exceed the measurement capacity of the devices used for measuring changes in water levels and measurements are not recorded with other

devices in accordance with the schedule listed in **Appendix I**, the test must be repeated.

- (5) If the pumping data indicate a change in aquifer transmissivity as a result of fracture dewatering, all analyses of the potential radius of influence and impacts to neighbors, streams, and wetlands must be conducted using the lower value of aquifer transmissivity. If this lower aquifer transmissivity indicates that the anticipated demand cannot be supported by the aquifer beneath the site, the applicant will need to review and adjust the proposed demand and/or extent of development as outlined in c(1) above.

d. Recovery Phase.

- (1) For purposes of evaluating water-level recovery, the recovery phase duration will be equal to the pumping phase duration. For example, if the pumping phase is 8 hours in duration, water levels 8 hours after the pump has been turned off will be compared to the pre-pumping static water level to assess recovery magnitude and degree of recovery.
- (2) If water-level recovery is less than 90% of full recovery at the end of a recovery phase of similar duration as the pumping phase, the applicant must show through standard/recognized aquifer test analytical methods and calculations that the well or wells are capable of full recovery. If full recovery cannot be shown or groundwater mining/dewatering has occurred, the applicant will need to review and adjust the proposed demand and/or extent of development as outlined in c(1) above.

e. Neighboring Wells.

- (1) If the drawdown is measured or projected to be more than 1 foot at any existing adjacent property well or along a boundary of the Lot in Question, the applicant's hydrogeologist must evaluate long-term potential impacts to adjacent properties based on the actual operating condition of wells in that zone or along that portion of the boundary of the Lot in Question.
- (2) If a drawdown of 5 feet or more (Note: This may be adjusted at the recommendation of the municipality's consulting hydrogeologist taking into account existing lot sizes adjacent to the Lot in Question and the lot sizes/extent of development/amount of demand proposed) is noted in any existing adjacent property well, or is projected at any boundary of the Lot in Question, then the aquifer will be deemed to have insufficient

transmissivity and capacity to support the proposed demand and/or extent of development. The applicant will be required to review and adjust the proposed demand and /or extent of development and well locations to ensure that drawdown will not exceed 5 feet at any boundary of the Lot in Question as outlined in c(1) above.

- f. Impacts to Streams and Wetlands. If drawdown is measured or projected to induce leakage from streams or wetlands such that base flow in these streams will be directly reduced or wetlands partially or entirely dewatered, then the proposed demand and/or extent of development must be reduced to prevent adverse impacts to stream flow and wetlands.
- g. Additional Testing. Any test that must be repeated, restarted, or re-conducted at a reduced demand, must satisfy all the requirements of this Ordinance including but not limited to re-notification of all property owners within 500 feet of the Lot in Question and resubmission of an aquifer test plan for Board approval prior to implementation of the test.
- h. Sealing of the Observation Wells. Pursuant to N.J.S.A. 58:4A, all observation wells installed as part of the aquifer testing shall be properly abandoned. A certified and licensed well driller shall abandon the wells in accordance with the requirements of N.J.A.C. 7:9D-3.1, et seq. The well abandonment forms shall be completed and submitted to the New Jersey Department of Environmental Protection, Bureau of Water Allocation (call 609-984-6831 for forms and information).

§ 159-32. Water quality evaluation.

- A. The purpose of the water quality evaluation is to determine that the groundwater used to supply a proposed use or development does not contain more than the maximum contaminant levels established by the NJDEP for drinking water quality. In the event that one or more constituents do not meet the applicable MCLs, standard treatment systems need to be readily available.
- B. Determination of water quality shall be in accordance with the following:
 - 1. Water quality shall be determined for each pumping well and on-site observation well as part of this program. Water samples from a pumping well used for the aquifer pumping test shall be collected during the pumping phase of that test. Water samples from the on-site observation wells shall be collected either 3 days in advance, or 3 days after, the pumping test has been completed. The

samples must be collected in accordance with the NJDEP Field Sampling Procedures Manual.

2. At a minimum, the samples shall be analyzed by an NJDEP-certified laboratory for: hardness, gross alpha particle activity, arsenic, iron, manganese, copper, lead, nitrate, e coli bacteria, and total and fecal coliform bacteria as well as any other element determined under the Private Well Testing Act, as may be amended or expanded by the Andover Township Board of Health or Sussex County Health Department. The samples shall also be analyzed for volatile organic compounds for which the USEPA or NJDEP has determined maximum contaminant levels using USEPA Method 524.2.
 3. During the pumping test, field measurements of pH, conductivity/total dissolved solids and temperature shall be made with calibrated instruments.
 4. If conditions on the Lot in Question or the history of the Lot in Question indicate the potential historic use of materials containing heavy metals, pesticides, herbicides, or other volatile or semi-volatile organic compounds at or near the Lot in Question, these analyses must also be conducted.
 5. Based on past historical operations at the Lot in Question or at nearby properties, the Board, in its discretion, may require additional analyses of the groundwater to assess current and potential future impacts. The results of the water sample analyses will be used to assess background (pre-development) water quality conditions.
- C. Water quality analyses shall be undertaken within 160 days of submission of an application for development or application for a permit.

§ 159-33. Fees.

The fees to the Township of Andover Land Use Board or Board of Adjustment shall be covered by the development application fees and escrow requirements set forth in Chapter 74, Land Use Procedures, Article VI, Fees and Costs. Fees to the Township of Andover Board of Health and the Sussex County Health Department shall be as required by those entities.

§ 159-34. Other requirements for major subdivisions.

- A. If a Lot is proposed to connect with a public or community water system, the applicant shall present proof of permission to connect with that system.
- B. If a Lot or Lots will utilize individual wells, the aquifer testing and hydrogeologic analysis and water quality requirements of this Section shall be met, where applicable. Moreover, 25 percent of the proposed wells shall have been constructed in accordance with all requirements of the Local and State Health Department as a condition of preliminary approval of any major subdivision and before submission of a final major subdivision application. The wells shall be constructed on every fourth lot

following the grant of preliminary approval so that in the event it is found that adequate water supply cannot be provided to a particular lot, that lot may be merged at the time of final approval with an adjoining lot that already has a dependable well. The applicant shall submit a letter from the Sussex County Health Department stating that all constructed wells meet County standards.

SECTION 2: Chapter 159, Subdivision of Land, shall be amended and supplemented by the addition of the following Appendices, which shall be enumerated as Appendix I through Appendix V.

APPENDIX I - Aquifer Test Procedures

1. The **first test phase** will involve the collection of background water levels prior to the start of the test. The **second test phase** will involve the pumping of water from the well and the monitoring of water-level drawdown in the observation and pumping wells. The **third test phase** will involve the measurement of water-level recovery in the observation and pumping wells after the pump has been shut down. This third phase of the test must, at a minimum, be the same length as the pumping phase.
2. The aquifer test (all three phases) shall not be conducted during a precipitation event or events in which total precipitation equals or exceeds 0.5 inches. Precipitation must be recorded with a National Weather Service acceptable rain gauge on site during all phases of testing and measurements for each day must be included in the hydrogeologic report. If precipitation occurs during the test, the applicant shall provide precipitation amounts and sufficient data to show that the precipitation did not recharge the aquifer during the test and impair the test results. If precipitation amounts exceeding 0.5-inches are recorded, the test may have to be repeated unless adequate data can be provided to assure the municipality's consulting hydrogeologist and the Board that the precipitation did not affect the water-level data collected during the aquifer test. The requirement to repeat the test will be at the Board's discretion.
3. The pumping equipment must be installed in the pumping well at least 24 hours prior to the start of the background phase.
4. Prior to starting the background phase, water levels in the test well and observation wells must be permitted to stabilize for a minimum of three days after all drilling activities are completed.
5. During the background phase, water levels should be collected at a minimum of one measurement per hour for the 24-hour period prior to the start of the pumping test. It is the applicant's responsibility to collect sufficient data to determine background conditions and to ensure that antecedent influences can be fully characterized. Barometric measurements and additional water-level measurements can be made by the applicant to evaluate the change in water levels resulting from barometric pressure changes and/or influences from off-site pumping.
6. On the day of the pumping phase, water levels shall be collected from the pumping and observation wells to determine static water level conditions prior to the start of pumping. Water levels in wells on neighboring properties should be allowed to stabilize to at or near static prior to the start of pumping. For any observation well which has been pumped within the 24 hours preceding the test, two depth-to-water measurements, at least 1 hour apart, shall be collected to assess if the well has fully recovered prior to the start of pumping.
7. When the aquifer test is started, the pumping flow rate shall be adjusted, within the first several minutes of pumping, to a uniform (constant) pumping rate as required for a constant-rate test and in accordance with the approved aquifer test plan. The flow rate shall not vary by more than 10 percent throughout the test. If the flow rate fluctuates

more than 10 percent, the test may be deemed invalid and the applicant will be required to repeat the notification and testing process.

8. Water-level measurements during the pumping phase of the test shall be collected in accordance with **Table V-1**. This same schedule shall be followed for the recovery phase of testing upon shut down of the pump in the test well.

Time Since Pumping Began or Stopped	Test Well	Observation Wells
0 to 5 minutes	0.5 minutes	0.5 minutes
5 to 10 minutes	1 minute	1 minute
10 to 30 minutes	2 minutes	2 minutes
30 to 60 minutes	5 minutes	5 minutes
60 to 120 minutes	10 minutes	10 minutes
2 to 24 hours	30 minutes	30 minutes

Aquifer Pumping Test Rate and Duration:

The rate and duration of the aquifer test will depend upon the size of the proposed development and/or the expected average and peak daily demands for water.

1. The average daily and average yearly water demand for human consumption within the Lot in Question must be determined according to the guidelines in N.J.A.C. 7:10-12.6. Demand calculations must further include irrigation systems, if proposed, and water usage for filling of swimming pools and all other demands. The peak-day demand is twice the average daily demand. For non-residential developments, peak-day demand must include seasonal factors.
2. The pumping phase must simulate peak-day demand and therefore, the pumping phase duration is not to extend more than 24 hours. The minimum pumping rate is calculated by dividing the peak-day demand by 1440 minutes per 24-hour period. If the well yield is sufficient, shorter pumping periods can be used, but should be not less than 8 hours in duration.
3. If the demand exceeds 100,000 gallons per day, a New Jersey Water Allocation Permit or Agricultural Water Use Certification, as applicable, must be obtained from the New Jersey Department of Environmental Protection.
4. For mixed use developments containing two or more of the following components: residential, nonresidential and agricultural, each component shall be tested separately. Wells installed for the residential portion must be used as observation wells for the nonresidential and/or agricultural well testing and wells installed for nonresidential use must be used as observation wells for the residential and/or agricultural well testing.
5. The pumping rate will be determined by equipping the discharge pipe with a calibrated flow meter to measure flow rate and determine total volume pumped from the well. The calibration certification for the meter must be submitted to the Board. If the meter has not been calibrated within one year of the testing date, the test must be repeated.
6. The discharge shall be directed so that it leaves the Lot in Question without infiltrating to the aquifer. The pumped water discharge location must be at least 200 feet from the pumping well. Any and all permits required by the NJDEP and/or local authorities for the discharge of pumped water must be obtained prior to starting the test.

APPENDIX II - Observation Well Requirements - Well Testing

1. The number of observation wells required per aquifer test will depend on the proposed number of new lots or dwelling units and/or proposed nonresidential or non-exempt agricultural water demand. New and existing observation wells may be located such that they can be used as future water-supply wells but they shall be located in such a manner that they will yield the most accurate information concerning the aquifer.
2. Observation wells shall be completed to similar depths as the pumping well.
3. During all three phases of the aquifer test, water must not be withdrawn from an observation well. Observation wells cannot be pumped during the aquifer test. Therefore, if an existing well is to be used as an observation well to satisfy the requirements listed below, the pump in the well must remain off during all three phases of testing.
4. Observation wells must be located parallel and perpendicular to strike of the primary regional fractures and those intersected by the tested well. Additional observation wells should be located to evaluate potential secondary fractures and impacts to adjacent properties.
5. A fracture trace analysis showing the location and orientation of fracture lineaments must be included with the **Aquifer Test Plan**. This same analysis with additional information regarding septic system locations must be included in the **Final Hydrogeologic Report**. The fracture trace analysis must be used to identify all observation wells on the Lot in Question and to identify neighboring property owner's wells to be monitored during the test.
6. All wells must be located in accordance with the minimum distances required by N.J.A.C. 7:10-12.12.
7. One observation well shall be located within 200 feet of the test well and at least one observation well shall be located along a fracture trace or preferential fracture direction between 200 and 500 feet from the pumping well.
8. For residential developments of two or more new lots or dwelling units, the number of observation wells shall be as shown in **Table VI-1**. Although water levels will be measured and recorded in the pumping well, and these data must be submitted with the hydrogeologic report, the pumping well shall not serve as one of the observation wells required below.

Table VI-1: Observation Well Requirements for Residential Developments	
Number of Proposed New Lots or Dwelling Units	Number of Observation Wells
2 to 5	2 (minimum of 1 new well within Lot in Question)
6 to 25	3 (minimum of 2 new wells within Lot in Question)
26 to 49	5 (minimum of 4 new wells within Lot in Question)
50 or more	Test proposal submitted to Board for review and approval

9. For nonresidential developments or expansions thereof leading to a total anticipated daily demand exceeding 800 gallons per day on the Lot in Question, or for non-exempt agricultural uses, the number of observation wells shall be as shown in **Table VI-2**. Although water levels will be measured and recorded in the pumping well, and these data must be submitted with the hydrogeologic report, the pumping well shall not serve as one of the observation wells required below.

Table VI-2: Observation Well Requirements for Nonresidential and Non-Exempt Agricultural Uses	
Average Demand (gallons per day)	Number of Observation Wells
800 to 1,999	2 (minimum of 1 new well within Lot in Question)
2,000 to 9,999	3 (minimum of 2 new wells within Lot in Question)
10,000 to 99,999	5 (minimum of 2 new wells within Lot in Question)
100,000 or more	Obtain NJDEP Water Allocation Permit or Water Usage Certification. All aquifer testing plans to be submitted to both NJDEP and the Board for review and approval.

10. The observation wells and the pumping well must have a geologic log describing the depth and types of soils and rocks encountered and the depth and yields of all water-bearing fracture zones. The logs must include static water-level measurements and total yield estimates for each well.

11. Pursuant to N.J.S.A. 58:4A, all observation wells installed as part of the aquifer testing shall be properly abandoned. A certified and licensed well driller shall abandon the wells in accordance with the requirements of N.J.A.C. 7:9D-3.1, et seq. The well abandonment forms shall be completed and submitted to the New Jersey Department of Environmental Protection, Bureau of Water Allocation (call 609-984-6831 for forms and information).

APPENDIX III - Nearby Well/Spring Owners - Notification Requirements and Procedures

Notification:

1. Owners of existing wells and springs on lots located within 500 feet of a boundary of the Lot in Question shall be given an opportunity to have their wells/springs monitored during the aquifer test.
2. Such opportunity shall be given by the applicant by notice via certified mail and shall state the time and place of the aquifer test. A notice acceptable to the municipality is included in **Appendix VIII – Notice of Aquifer Test - Time and Place**.
3. The notice shall indicate that such existing well may be monitored, if agreed to by the well owner, provided the well is readily accessible. Such notice shall indicate that the existing well owner must respond within seven (7) days of notice receipt and the applicant's responsibility is to monitor up to three (3) wells on properties located within 500 feet of the boundaries of the Lot in Question.
4. The applicant shall provide a certificate of insurance for itself and all contractors utilized and pay all costs associated with the monitoring of any existing residential well.
5. Prior to monitoring, all buried wells must be raised to a minimum of twelve inches above grade to allow access and retrofitted with pitless well adapters etc. per N.J.A.C. 7:10-12.20 well head requirements.
6. All wells shall be chlorinated each time they are opened for service or monitoring, unless the owner specifically waives the requirement of chlorination in writing.
7. The costs of extending, restoring or replacing a well damaged as a result of testing shall be the responsibility of the applicant.
8. The applicant shall indemnify and hold the Township and its consultants and representatives harmless from any liability in connection with these testing requirements.

Response:

1. If the owner of a lot within 500 feet of a boundary of the Lot in Question decides to participate by agreeing to have his/her existing well monitored, such owner shall notify the applicant by certified mail.
2. Such response shall be provided within 7 days of receipt of the certified notice from the applicant.
3. If the applicant receives no response within the time provided, the response shall be deemed to be negative.
4. Protection of Monitored Wells and Selection of Wells for Monitoring.
 - (a) All reasonable efforts must be made to protect the potability of water from the monitored well.

(b) In the case when more than three property owners within 500 feet of the boundaries of the Lot in Question decide to participate and to have their existing wells monitored, only three must be monitored.

(c) However, if any of the property owners requesting monitoring have wells completed to a depth less than 100 feet, these wells must also be monitored in addition to three other wells.

(d) A map depicting the location of all wells to be monitored and a list of all property owners within 500 feet of the boundaries of the Lot in Question that requested monitoring is to be submitted to the Board's hydrogeologist for review and approval prior to implementing the test.

(e) The observation wells on neighboring properties should be selected to assess whether water-level drawdown impacts from the pumping well will extend beyond the boundaries of the Lot in Question in any direction.

(f) The Board reserves the right to retain a qualified hydrogeologist to review the proposed monitoring locations and to make recommendations to revise the locations to be monitored.

APPENDIX IV - Notice of Aquifer Test

Date

John and Mary Smith

_____,
_____, NJ _____

**Re: Aquifer Testing for Block ____, Lots _____
_____ Andover Township
Sussex County, New Jersey**

Dear Mr. and Mrs. Smith,

Aquifer testing for proposed groundwater withdrawals of up to _____ gallons per day from Block ____, Lots _____, has been tentatively scheduled for the week of _____, 20__.

_____ new wells are/will be located on Block ____, Lots____, the Lot in Question. The purpose of the wells is _____. One of these wells will be pumped and the remaining ___ wells will be monitored to determine aquifer coefficients and interference effects as per Section _____ of the Andover Township Land Use Ordinance. All aquifer test activities will be conducted in accordance with this Ordinance.

Your property is located within 500 feet of a boundary of the Lot in Question, and, in accordance with the Andover Township Land Use Ordinance, you are hereby notified of the pending aquifer test. Based on Andover Township's Land Use Ordinance, you may request that the water level in your well be monitored during the aquifer test.

If your well is monitored, the water-level measurements will be used to directly determine water-level drawdown interference effects from the proposed new wells and/or increased groundwater withdrawals on your well. If your well is not monitored, then the applicant's hydrogeologist and the Township's appointed hydrogeologist will calculate potential water-level drawdown interference effects on your well from the data obtained from other wells observed during the test, however such calculation will only be a hypothetical calculation.

If you would like to participate in the monitoring of water levels during the aquifer test, please sign and return the enclosed Access Agreement form. The Access Agreement form should be returned to _____ on or before _____, 20__. In addition, please include copies of all well construction details and a geologic log that you may have for your well. Based on the level of response to this request and the well details/geologic log, not all well owners that request monitoring may be included in the test. The Township's Land Use Ordinance requires that the developer select three of the nearest wells for monitoring. However, if your well is completed to a depth of 100 feet or less then the developer must also monitor your well, if you so request.

If your well is selected for monitoring during the aquifer test, the applicant's hydrogeologist will conduct the following activities on your well:

1. Collect a pre-test water sample from a tap such as at your kitchen sink. The water sample will be analyzed for the presence/absence of bacteria in your well water.
2. Remove the top of your well to gain access. All equipment placed into your well for the test will be cleaned with a disinfectant to prevent the introduction of bacteria into your well.
3. Install access tubing (dip tube) into the well, if necessary, to prevent the accidental entanglement of measuring equipment with pump discharge piping and pump wiring.
4. Install a pressure transducer with a data logging device in the dip tube. This instrumentation will be used to measure water level changes in your well and will be installed at least 24-hours before the start of pumping.
5. Install a temporary cover over your well to prevent rainwater or foreign matter entering your well.
6. Periodically check your well, during the aquifer test, to directly measure water levels with an electronic measuring device or to download data from the pressure transducer.
7. Remove the pressure transducer and dip tube installed in your well for the aquifer test.
8. Add sufficient chlorine to your well to disinfect your well prior to replacing and securing the cap on your well. The water in your house should be run at all taps to ensure adequate disinfection of the entire water supply system. After chlorine is noted at each tap, an outside tap can be used to further pump the well and dissipate the chlorine. The addition of chlorine will most likely result in a chlorine odor for one or more days.
9. Collect a post-test sample from the tap sampled prior to the test and analyze the sample for the presence/absence of bacteria.

If you require additional information regarding the aquifer test, please contact _____, Township _____ at _____.

Sincerely,

Access Agreement

All expenses related to the performance of the aquifer test will be borne by the applicant (owner/developer) for Block ____, Lot(s) ____. However, access to neighboring wells must be provided by the owners of those properties. All reasonable precautions will be observed by the applicant, the applicant's hydrogeologist, and the well driller to avoid damage to any adjacent residential property including both the well itself and its surroundings.

The owner of the neighboring well, who signs below, agrees to provide access to a commonly used tap for the collection of water samples prior to and after testing for bacteria analysis. After the initial water sample is collected, the well will be opened to permit access to measure water levels and the well will remain unsealed during the testing process which will be a maximum of 72 hours. A dip tube may be installed within your well to facilitate the measurement of water levels.

All equipment placed in your well will be cleaned to minimize the potential introduction of bacteria. However to ensure that no bacteria are accidentally introduced into your well during the testing process, chlorine will be added to your well at the conclusion of the testing procedures. If you would prefer that chlorine not be added to your well, please check the box below the signature line.

With your signature and submittal of this form, you request participation in the monitoring of water levels during the aquifer test on the Lot identified as Lot ____, in Block ____, in accordance with the Andover Township Land Use Ordinance, Section _____, and that you have read and accept the requirements of this form.

Property Owner

Date

Please **do not add** chlorine to my well at the conclusion of testing. I understand and will accept responsibility that bacteria may have been accidentally introduced into my well.

APPENDIX V – Final Hydrogeologic Report Check List

1. Water Level Data from Three Phases of Testing

Electronic _____

Hand-Held _____

2. Aquifer Hydraulic Characteristics Calculations

Transmissivity _____

Storativity _____

Pumping Cone of Influence _____

Long Term Sustained Yields of Wells _____

Potential Impacts to Nearby Wells _____

Water-Level Recovery Analysis _____

3. Description of Aquifer

4. Detailed Evaluation of Water Supply Demand (Average and Peak Demand for all anticipated uses)

5. 1000- foot Well Inventory

6. Figures Showing:

Geology and Hydrology (including mapping of bedrock structural characteristics)____

Topography _____

Groundwater Flow _____

Development Plans _____

7. Water Quality Testing Results

Summary Tables _____

Laboratory Analytical Reports _____

8. Sewage Disposal Impact

Site Plan Showing Septic Field, Well, and Fracture Trace Locations

Nitrate Dilution Analysis _____

Leach Field Locations _____

Map at 1 inch = 200 feet _____

9. Well Drilling Contractor

Name: _____

License Number _____

10. NJDEP Well Records

SECTION 3. Chapter 131, Site Plan Review, Article III, Applicability of Site Plan Requirements, Section 131-8, Preliminary approval; site plan details, is hereby amended and supplemented with the addition of Subsection (F), to read as follows:

§ 131-8. Preliminary approval; site plan details.

F. If applicable to the site plan application as set forth in Section 159-30 of this Code, the applicant shall satisfy the water supply and water quality requirements as further set forth under Article VII of Chapter 159, Subdivision of Land.

SECTION 4: The Township Clerk is hereby directed to give notice at least ten (10) days prior to the hearing on the adoption of this Ordinance to the Sussex County Planning Board and to all other persons entitled thereto pursuant to N.J.S.A. 40:55D-15 and N.J.S.A. 40:55D-63 (if required). Upon the adoption of this Ordinance after public hearing thereon, the Township Clerk is further directed to publish notice of the passage thereof and to file a copy of the Ordinance as finally adopted with the Sussex County Planning Board as required by N.J.S.A. 40:55D-16.. The Clerk shall also forthwith transmit a copy of this Ordinance after final passage to the Township Tax Assessor as required by N.J.S.A. 40A9-2.1.

SECTION 5: Severability. If any paragraph, section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid or unconstitutional by any Court or administrative agency of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining paragraphs or sections hereof.

SECTION 6: Inconsistency. All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

SECTION 7. This Ordinance may be renumbered for purposes of codification.

SECTION 8: Effective Date. This Ordinance shall take effect following final adoption and publication in accordance with applicable law.

ATTEST:

TOWNSHIP OF ANDOVER
COUNTY OF SUSSEX
STATE OF NEW JERSEY

Vita Thompson, Clerk

Gail Phoebus, Mayor

INTRODUCED: March 24, 2008

ADOPTED: April 28, 2008

CERTIFIED: April 29, 2008

EFFECTIVE DATE: May 02, 2008

TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY

ORDINANCE #2008-05

AN ORDINANCE OF THE TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY AMENDING AND SUPPLEMENTING CHAPTER 159, SUBDIVISION OF LAND, AND CHAPTER 131, SITE PLAN REVIEW, ARTICLE III, APPLICABILITY OF SITE PLAN REQUIREMENTS, WITH THE ADDITION OF REGULATIONS PERTAINING TO THE TESTING OF WELLS

WHEREAS, much of Andover Township is dependent upon private wells for residential drinking water. The use of private wells depends, in turn, upon the maintenance of a certain quantity and quality of groundwater; and

WHEREAS, the Township is underlain by bedrock aquifer systems that range from marginal yielding aquifer systems in terms of water supply potential to moderate yielding aquifer systems; and

WHEREAS, the primary purpose of this Ordinance is to ensure that adequate water supply is available for whatever development or use of land is proposed without adverse impact on neighboring wells, and that groundwater quality will be acceptable for drinking water purposes.

NOW, THEREFORE, BE IT ORDAINED, by the Township Committee of the Township of Andover, County of Sussex and State of New Jersey as follows:

SECTION 1. Chapter 159, Subdivision of Land, is hereby amended and supplemented with the creation of Article VII, Water Supply and Water Quality Requirements, to read as follows:

ARTICLE VII WATER SUPPLY AND WATER QUALITY REQUIREMENTS

§ 159-28. Purpose and intent.

The purpose and intent of this Section is to ensure that:

- A. Residential developments of two or more new lots or dwelling units and all applications for nonresidential uses that will result in total groundwater withdrawals greater than 800 gallons per day and all non-exempt agricultural uses shall demonstrate that adequate water supply is available for the existing and proposed use(s) on site without adverse impacts on neighboring wells and other resources including but not limited to wetlands and streams.
- B. Groundwater quality is acceptable for drinking water purposes (or other intended use in the case of a nonresidential or agricultural application).
- C. The impacts of the proposed withdrawal of the groundwater resource will not interfere with use of the resource by existing proximate users.

§ 159-29. Definitions.

In addition to the Definitions of terms set forth in Article I, Section 159-4, the following additional definitions shall apply to the enforcement and implementation of this Section:

Abandoned well: Any well which is not in use, has been illegally installed or improperly constructed, has been improperly maintained or is damaged, has not been maintained in a condition that ensures that the subsurface or percolation waters of the State are protected from contamination, has been replaced by another well or connection to a public supply, is contaminated, is nonproductive, or no longer serves its intended use pursuant to the State Act.

Abandonment or Decommissioning of a Well: The permanent closure or sealing of a well in accordance with N.J.A.C. 7:9D-3 *et seq.*

Act, State: Refers to the Private Well Testing Act, P.L. 2001, c. 40; N.J.S.A. 58:12A-26 *et seq.*, which applies to buyers, sellers and lessors of certain real property as follows:

- A. All contracts of sale for any real property in which the potable water supply is a private well located on the property, or for any other real property in which the potable water supply is a well that has less than 15 service connections or that does not regularly serve an average of at least 25 individuals daily at least 60 days out of the year, shall include a provision requiring the testing of that water supply for certain parameters as set forth in the Act.
- B. The lessor of any real property in which the potable water supply is a private well for which testing of the water is not required pursuant to any other State law shall test that water supply for certain parameters as set forth in the Act. Testing of the water is required at least once every five years. In addition, within 30 days after receipt of the test results, a written copy of the results must be provided to each rental unit and each new lessee.

Acute Parameter: A parameter in drinking water that has significant potential to have serious and adverse effects on human health as a result of short-term or limited exposure.

Alter: To enlarge, deepen, replace or in any other way change any portion of an existing water supply system. The terms "alteration" and "altered" shall be construed accordingly.

Aquifer: A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield economic quantities of water to wells and springs.

Aquifer, Confined: An aquifer that is overlain by a confining bed (aquitard). The confining bed has a significantly lower hydraulic conductivity than the aquifer. Artesian aquifer is a synonym.

Aquifer, Semi-Confined: An aquifer overlain by a low-permeability layer that permits water to slowly migrate through to the aquifer. Also termed leaky artesian or leaky confined aquifer.

Aquifer, Unconfined: An aquifer in which there are no confining beds between the zone of saturation and the ground surface. Water-table aquifer is a synonym.

Aquifer Test: A three-part test conducted to obtain background, pumping, and recovery data/information from a pumping well and observation wells in order to determine aquifer hydraulic characteristics and assess potential water-level drawdown (well interference) to nearby wells.

Aquifer Test Location: A location(s) most representative of site geologic conditions where the aquifer test shall be conducted to evaluate potential impacts to proximate users of the groundwater resource.

Aquitard: A low-permeability unit that can store groundwater and also transmit water slowly from one aquifer to another (also see Aquifer, Confined).

Applicant: A developer or property owner submitting an application for development or permit to locate, construct or alter a water supply.

Application for Development: The application form and all accompanying documents required by the Andover Township Land Use Ordinance for approval of a subdivision, site plan, planned development, conditional use, zoning variance, or direction of the issuance of a permit pursuant to N.J.S.A. 40:55D-34 or N.J.S.A. 40:55D-36.

Application for Well Permit: The application form and all accompanying documentation required by the NJDEP for approval to locate, construct or alter a water supply.

Board: The Andover Township Land Use Board or Board of Adjustment, whichever land use body has jurisdiction to hear the application for development.

Certified Laboratory: Any laboratory, facility, consulting firm, government or private agency, business entity or other person that the NJDEP has authorized pursuant to the Regulations Governing The Certification of Laboratories and Environmental Measurements, N.J.A.C. 7:18, to perform analysis in accordance with the procedures of a given analytical method using a particular technique as set forth in a certain methods reference document, and to report the results from the analysis of environmental samples in compliance with a NJDEP regulatory program.

Community Water Supply System, Public: A source and distribution system for potable water subject to the requirements of N.J.S.A. 58:12A-1.1 et seq. and N.J.A.C. 7:10-1.1 et seq.

Cone of Depression: The area around a pumping well in which the head (water level) in the aquifer has been lowered by pumping action.

Confining Bed: A body of low hydraulic conductivity material that is stratigraphically adjacent to one or more aquifers.

Contaminant: Any physical, chemical, biological, or radiological substance or matter that has an adverse affect on air, water or soil quality.

Department: The New Jersey Department of Environmental Protection.

Developer: As used in this Section, the legal or beneficial owner or owners of a lot or of any land which is the subject of an application for a permit to locate, construct or alter a water supply or the subject of a development application regulated by this Section, and shall include the holder of an option or contract to purchase, or other person having an enforceable proprietary interest in such land.

Drawdown: The lowering of the water table of an unconfined aquifer or the potentiometric surface of a semi-confined or confined aquifer caused by pumping of groundwater from a well or wells. Drawdown is determined by subtracting the depth to water during pumping from the static water level determined prior to the start of pumping.

Drinking Water Quality Standard: A standard that applies to a constituent or contaminant that is required to be tested pursuant to the New Jersey Safe Drinking Water Act, N.J.S.A. 58:12A-1 *et seq.* including a maximum contaminant level, recommended limits, or in the case of lead, an action level.

Exceedance: The concentration of a constituent or contaminant that is greater than a maximum contaminant level (MCL), action level, standard or recommended upper limit for that given constituent or contaminant.

Fracture Trace: The surface representation of a fracture zone as determined from an analysis of aerial photographs in stereo pair.

Groundwater: Water in the ground that is in the zone of saturation from which wells, springs and stream baseflow (dry weather streamflow) are supplied.

Head, Static: Static head is the height above a standard datum of the surface of a column of water that can be supported by the static pressure at a given point. In a groundwater system, it is composed of elevation head and pressure head.

Hydraulic Conductivity: The capacity of a geologic formation to transmit water. It is expressed as the volume of water at the prevailing density and viscosity that will move in unit time under a unit hydraulic gradient through a unit area measured at right angle to the direction of flow.

Hydraulic Gradient: The change in static head per unit of distance measured in a given direction.

Hydrogeology: The study of groundwater with particular emphasis given to its chemistry, mode of migration, and relation to the geologic environment.

Infiltration: The flow of water downward from the land surface into and through the upper soil layers.

Irrigation System: Equipment including but not limited to pumps, piping, and sprinkler heads used to distribute water to grasses, landscape materials, crops, and other vegetation.

Lot or Lot in Question: For the purposes of this Section, any designated parcel, tract or area of land, whether established by plat or otherwise permitted by law, to be used, developed or built upon as a unit, regardless of the nature of the use contemplated, which is the subject of an application for a permit to locate, construct or alter a water supply or the subject of an application for development that is regulated by this Section.

Maximum Contaminant Level (MCL): The maximum permissible concentration of a constituent or contaminant in drinking water. Maximum contaminant levels shall apply to public and non-public water systems, in accordance with the New Jersey Safe Drinking Water Act, N.J.S.A.58:12A-1 *et seq.* and implementing rules at N.J.A.C. 7:10.

NJDEP: The New Jersey Department of Environmental Protection.

Observation Well (Monitoring Well): A non-pumping well used to observe the elevation of the water table or the potentiometric surface. An observation well is generally constructed similar to a pumping well. Observation wells are also referred to as monitoring wells. Observation wells are required to measure water-level drawdown during the aquifer pumping test and also for the calculation of aquifer hydraulic

characteristics. The specific requirements for observation wells are provided in **Appendix VI - Observation Well Requirements – Well Testing** of this Ordinance.

Parameter: A general standard or scope that includes other terms such as contaminant, constituent, substance, metal, organic/inorganic chemical, and characteristics that are used to designate an analyte, group of analytes, attribute, or physical property.

Point-of-Entry Treatment (POET) Device: A water treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed to the entire house or building. Examples of POET include devices such as calcite filters and ion exchange (water softeners).

Porosity: The voids or openings in rock and soil. Porosity may be expressed quantitatively as the ratio of the volume of openings in a rock or soil to the total volume of the rock or soil.

Porosity, Primary: The porosity that represents the original pore openings when a rock or sediment was formed.

Porosity, Secondary: The porosity that has been caused by fractures or weathering in a rock or sediment after it has been formed.

Porosity, Effective: The amount of interconnected pore space available for fluid transmission.

Potable Water: Any water used, or intended to be used, for drinking and/or culinary purposes which is free from impurities in amounts sufficient to cause disease or harmful physiological effects, and complies with the bacteriological and chemical quality standards of the New Jersey Safe Drinking Water Act rules at N.J.A.C. 7:10.

Private Well: A potable water well that serves or will serve a dwelling unit or nonresidential or agricultural use and is located on the same real property as the dwelling unit or nonresidential or agricultural use.

Property Owner Notification – Nearby Wells and Springs: Appendix VII of this Ordinance outlines the notification requirements and procedures for owners of existing wells and springs within 500 feet of any boundary of the Lot in Question.

Public Notification: A general notice of private well test failures sent by the appropriate local health authority to surrounding and/or neighboring owners of real property. The notification can include recommendations to test for the parameters of concern to the owners of surrounding or neighboring properties served by wells.

Pumping Test: A test made by pumping a well for a period of time and observing the change in water levels (hydraulic head) in pumping and observation wells in the aquifer.

Pumping Test, Constant Rate: A pumping test during which the discharge rate from the pumping well is maintained at a constant rate for the duration of the test.

Pumping Test, Step Drawdown: A pumping test that involves pumping at sequentially increasing rates for fixed time periods.

Qualified Hydrogeologist: An individual who has received a minimum of a Bachelor's degree in Geology at an accredited institution or has completed an equivalent of thirty (30) semester hours of geological education (including at least 2 accredited courses in

hydrogeology) while obtaining a Bachelor's or Master's degree in a related field of engineering or science at an accredited institution. Such a person must also demonstrate eight years of professional work experience in the practice of applying geologic and hydrogeologic principals to interpretation of groundwater conditions and in the running of aquifer tests and the analysis of aquifer test data. The individual shall provide a resume or curriculum vitae to document education and experience requirements.

Recharge Area: An area in which there are downward components of head (water levels) in an aquifer. Infiltration moves downward to deeper parts of an aquifer in a recharge area.

Recharge, Aquifer: The volume of water that infiltrates to an aquifer, often expressed in million gallons per year per square mile or gallons per day per acre.

Recovery: The rate at which the water level in a well rises after the pump has been shut off. Recovery is the inverse of drawdown.

Reporting Laboratory: The certified laboratory responsible for reporting to the New Jersey Department of Environmental Protection a complete set of required information related to the analysis of a private well sample

Secondary Parameter: A drinking water parameter regulated for aesthetic purposes rather than health effects under the Safe Drinking Water Act (hereinafter "SDWA") rules at N.J.A.C. 7:10. Secondary parameters include pH, iron and manganese.

Specific Capacity {Q/s}: The specific capacity of a well is the rate of discharge of water from the well divided by the drawdown of water level within the well. Specific capacity will vary with the duration of pumping. Specific capacity should be described on the basis of the number of hours pumping prior to measurement of drawdown. Specific capacity will generally decrease with increased time of pumping.

Saturated Zone: The zone in which the voids in the rock or soil are filled with water at a pressure greater than atmospheric. The water table is the top of the saturated zone in an unconfined aquifer.

Static Water Level: The depth from ground surface to water in a well prior to the commencement of pumping.

Storage Coefficient (Storativity): The volume of water an aquifer releases or takes into storage per unit surface area of the aquifer per unit change in head. It equals the product of specific storage and aquifer thickness. Also known as storativity.

Tract: See definition of **Lot or Lot in Question**.

Transmissivity: The rate at which water of a prevailing density and viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. Transmissivity equals hydraulic conductivity times aquifer thickness.

Unsaturated Zone: The zone between ground surface and the water table. Pore spaces in the unsaturated zone contain water at pressures less than atmospheric. Also referred to as "zone of aeration" and "vadose zone".

Water Table: The surface in an unconfined aquifer or confining bed at which the pore water pressure is atmospheric. It is defined by the levels at which water stands in wells that penetrate the water body just far enough to hold standing water.

Water Quality Test Failure: An exceedence of an applicable drinking water quality standard of a required test parameter under the Private Well Testing Act. This term includes all applicable maximum contaminant levels or recommended limits, or an action level for lead analysis.

Water Treatment System: A device applied to the drinking water at a house or building for the purpose of reducing contaminants in the drinking water distributed in the house or building. Examples: point-of-entry devices and point-of-use devices.

Well: A hole or excavation larger than four inches in diameter or a hole or excavation deeper than 10 feet in depth that is drilled, bored, cored, driven, jetted, dug, or otherwise constructed for the purpose of removal or emplacement of, or investigation of, or exploration for, fluids, water, oil, gas, minerals, soil, or rock.

Well Interference: The result of two or more pumping wells, the drawdown cones of which intercept. At a given location, the total well interference is the sum of the drawdown due to each individual pumping well.

Well Permit: Refers to a written approval issued by the NJDEP, pursuant to the Well Construction and Maintenance Act Regulations at N.J.A.C. 7:9D, to a licensed well driller which authorizes a licensed well driller of the proper class to construct a well or wells in accordance with the permit.

Well Record: The form provided by the NJDEP that depicts the construction details of a well, which is completed by the well driller subsequent to well permit issuance and well installation.

§ 159-30. Applicability.

The provisions of this Section are applicable to:

- A. All residential developments of two or more new lots or dwelling units and all applications for nonresidential uses involving either the creation of a new water use or a total projected water use or consumption greater than 800 gallons per day.
- B. The provisions of this Section shall not apply to any agricultural wells that do not trigger either a water allocation permit pursuant to NJAC 7:19-2.2 or a water usage certification for agriculture, aquaculture or horticulture pursuant to NJAC 7:20A-2.
- C. Where New Jersey Department of Environmental Protection approval is required for a water allocation permit pursuant to NJAC 7:19-2.2 or a water usage certification for agriculture, aquaculture or horticulture pursuant to NJAC 7:20A-2, the Board's approval shall be contingent upon receipt of the permit or certification, as applicable, as well as compliance with this Section.

§ 159-31. Aquifer test and hydrogeologic evaluation.

- A. The purpose of undertaking an aquifer test and hydrogeologic evaluation is to:
 1. Determine if sufficient water is available to supply a proposed residential or commercial development or expansion thereof.

2. Assess the magnitude of water-level drawdown (well interference) impacts on existing and future nearby residential, institutional and commercial wells/springs.
 3. Predict the effect of long-term pumping on water levels in existing and future wells.
 4. Determine the potability of the proposed well source(s) through laboratory testing.
- B. Where applicable pursuant to Section 159-30, the requirements for aquifer testing and hydrogeologic evaluation are as follows:
1. The hydrogeologic evaluation shall include the review of available information including but not limited to published maps and reports, stereo pairs of aerial photographs, New Jersey Geological Survey (NJGS) Reports, and other applicable documents.
 2. An evaluation of the bedrock structure/structural characteristics shall be conducted which shall include an evaluation of the strike and dip of the bedding planes, orientation of faults, joints and fractures, plunges, and trends of folds. Published geological literature may be used, if appropriate and sufficient. The results of this evaluation along with the locations of the proposed observation well(s) in relation to the test well(s) shall be submitted with the aquifer test plan report required below.
 3. In addition, the hydrogeologic evaluation shall include a report of the recommended design, execution and analysis of the aquifer test(s). The data collection shall be designed and evaluated by a qualified hydrogeologist. A geologic and hydrogeologic report containing appropriate maps, well logs, aquifer test data and observation well data shall be prepared and submitted.
 4. The aquifer test shall consist of at least one constant-rate pumping test conducted at a sufficient rate and duration to be able to determine aquifer characteristics such as transmissivity and storage coefficient. As part of the aquifer test, observation wells are to be monitored to determine and evaluate water-level drawdown in these wells (the cone of depression) and aquifer parameters, and predict the effect of long-term pumping on water levels in existing and future wells.
 5. Prior to conducting any aquifer test, a preliminary hydrogeologic evaluation and the aquifer test plan shall be submitted for review and approval by the municipality's consulting hydrogeologist of which the applicant shall reimburse the Township for such services by way of an escrow account.
- C. The procedures for aquifer testing and hydrogeologic evaluation shall be as follows:
1. Submit a "Preliminary Hydrogeologic Evaluation and Aquifer Test Plan" for review and approval by the municipality's consulting hydrogeologist, with copies to the Board.

2. Following the approval of the "Preliminary Hydrogeologic Evaluation and Aquifer Test Plan" by the municipality's consulting hydrogeologist, conduct notification of proximate well/spring owners and prepare selected wells/springs as observation points, as necessary. Proof of notification of proximate well/spring owners shall be provided to the municipality's consulting hydrogeologist and to the Board Secretary and Attorney.
3. Perform the "Three Phases of Aquifer Test", specifically:
 - a. Background Monitoring
 - b. Pumping Test
 - c. Recovery Monitoring
4. Conduct water quality sampling and analysis for required parameters on representative wells.
5. Prepare and submit the "Preliminary Hydrogeologic Report" for review by the municipality's consulting hydrogeologist.
6. Respond to comments from reviewers, finalize report and submit "Final Hydrogeologic Report" to the municipality's consulting hydrogeologist with copies to the Board.

D. The requirements for the aquifer test plan and aquifer test shall be as follows:

1. Prior to conducting an aquifer test, the applicant shall submit to the municipality's consulting hydrogeologist the design of such aquifer test and the qualifications of the persons and firm who will be performing the test.
2. The design of the aquifer test shall be developed based on the required hydrogeologic evaluation, using applicable guidance from "Guidelines for Preparing Hydrogeologic Reports for Water Allocation Permit Application with an Appendix on Aquifer Test Analysis Procedures" NJGS GSR 29 (1992 or most recent edition) or successor document.
3. The aquifer test shall be conducted in three phases: the background phase, the pumping phase, and the recovery phase. **Appendix I - Aquifer Test Procedures** of this Ordinance outlines the procedures for aquifer test design, data collection and reporting.
4. If the Lot in Question is underlain by two or more geologic formations, then an aquifer test will be required for each portion of the Lot in Question underlain by each formation. The test requirements for each formation will depend on the number of lots and anticipated water usage per formation.
5. The aquifer test(s) shall be required to be conducted at the location(s) most representative of site geologic conditions and also

most effective for evaluating the potential impacts to proximate users of the groundwater resource. Where it is not possible to meet both objectives, then a location shall be chosen to optimize the two.

6. Observation wells shall be required to measure water-level drawdown during the aquifer pumping test and also for the calculation of aquifer hydraulic characteristics. The specific requirements for observation wells are provided in **Appendix II - Observation Well Requirements – Well Testing** of this Ordinance.
 7. **Appendix III** of this Ordinance outlines the notification requirements and procedures for notification of owners of existing wells and springs within 500 feet of the boundaries of the Lot in Question. Inadequate notification will require the aquifer test to be repeated after new notice. A form of Notice and Access Agreement are included in **Appendix IV**.
 8. In the event that the preliminary hydrogeologic evaluation indicates that a surface-water and/or groundwater divide separates the Lot in Question, an aquifer test will be required for each side of the divide.
- E. The requirements for the submission of the hydrogeologic report and the evaluation of the results of the aquifer test shall be as follows:
1. A hydrogeologic report must be submitted with each application to which this Section is applicable. This report shall document the design and implementation of the aquifer test and include the following data, information and analysis:
 - a. An evaluation of the bedrock structure/structural characteristics, including an evaluation of the strike and dip of the bedding planes, orientation of faults, joints and fractures, plunges, and trends of folds.
 - b. Calculations of aquifer characteristics such as transmissivity and storage coefficient, calculations of the cone of depression, potential impacts to adjacent well owners, and an evaluation of the long-term sustained yield for the wells.
 - c. All water-level and precipitation measurements obtained during the three phases of the aquifer test in electronic format acceptable to the municipality.
 - d. A detailed hydrogeologic description of the aquifers encountered beneath the Lot in Question and adjacent properties.
 - e. A detailed evaluation of the water-supply demand for an average and peak day. This demand should be supported with information on anticipated population, expected unit density, size of units, lawn and garden irrigation needs, pool filling requirements, and other anticipated water uses.

- f. An inventory of all wells within 1,000 feet of the Lot in Question appended and placed on a base map of the entire Lot. This inventory must be submitted in electronic format acceptable to the municipality.
 - g. Figures depicting site geology, topography, surface water bodies, water-level elevations, groundwater flow, and development plans.
 - h. All laboratory water-quality sampling data tabulated and summarized. A copy of the laboratory reports shall be provided to the municipality's consulting hydrogeologist with one complete copy to the Board. The laboratory reports can be submitted to the municipality's consulting hydrogeologist electronically in PDF format.
 - i. A detailed evaluation of potential impacts from subsurface sewage disposal systems on groundwater quality. A site plan or survey of the Lot in Question depicting topography, actual and planned well locations, septic leach field locations, and fracture trace locations at a minimum scale of 1-inch equals 200 feet should be included. For any and all locations where a fracture or set of fractures intersects one or more wells and/or septic leach fields, a detailed assessment of treatment technologies should be included. The treatment technologies should provide adequate assurances that any and all groundwater pumped from the wells will satisfy Federal and New Jersey Drinking Water Standards (MCLs) and will not be degraded by the septic leach field discharges.
 - j. The hydrogeologic report shall be prepared and signed by a qualified hydrogeologist using applicable sections of GSR 29 (New Jersey Geologic Survey, Guidelines for Preparing Hydrogeologic Reports for Water Allocation Permit Applications, with an Appendix on Aquifer Test Analysis Procedures) or successor document as a guide.
 - k. The hydrogeologic report shall include the name and license number of the well driller and pump installer. The report shall include the names of the persons and firm responsible for collecting the water-level measurements. In addition, the report shall include copies of the completed NJDEP Well Records. **Appendix V** provides a checklist of all items that must be addressed in the hydrogeologic report.
2. The evaluation of the hydrogeologic report and test results shall include consideration of the following, any or all of which will result in a requirement that the test be repeated:
 - a. Precipitation. A test conducted during a period in which 0.5 inches or more of precipitation are recorded at or near the Lot in Question must be repeated or technical documentation provided that the precipitation event had no

impact on water levels 24 hours before, during, and 24 hours after the test.

- b. Background Phase. Antecedent influences (from recent precipitation events, changes in barometric pressure, outside pumping influences, etc.) must be determined, and, if necessary, water-level data from the pumping phase and recovery phase must be corrected. Insufficient data to assess these influences will require repetition of all three phases of the aquifer test.
- c. Pumping Phase.
 - (1) If the pumping rate does not exceed the average daily demand by 120 percent or the peak-day demand cannot be pumped within a 24-hour period, the aquifer beneath the Lot in Question may be deemed insufficient to meet the anticipated demands, and the applicant shall review and adjust the proposed demand and/or extent of development proposed. Some of the alternatives may include:
 - (a) Conducting two or more aquifer tests at discrete locations within the Lot in Question. The total volume of water pumped during the two or more aquifer tests must equal or exceed the proposed 24-hour peak-day demand. This may be particularly applicable where large withdrawals are proposed in low yielding bedrock aquifer systems. Each test must be conducted individually and at no time should two wells be pumped simultaneously.
 - (b) Decreasing the number of proposed lots/dwelling units or amount of nonresidential development proposed or otherwise reducing the amount of groundwater to be withdrawn.
 - (c) Re-arranging the development layout to better fit the availability of groundwater resources.
 - (2) If the pumping rate varies by more than 10 percent of the average flow rate, the entire test shall be repeated.
 - (3) If the pump shuts down during the pumping phase, the entire test must be repeated.
 - (4) If water levels in the pumping and/or observation wells exceed the measurement capacity of the devices used for measuring changes in water levels and measurements are not recorded with other

devices in accordance with the schedule listed in **Appendix I**, the test must be repeated.

- (5) If the pumping data indicate a change in aquifer transmissivity as a result of fracture dewatering, all analyses of the potential radius of influence and impacts to neighbors, streams, and wetlands must be conducted using the lower value of aquifer transmissivity. If this lower aquifer transmissivity indicates that the anticipated demand cannot be supported by the aquifer beneath the site, the applicant will need to review and adjust the proposed demand and/or extent of development as outlined in c(1) above.

d. Recovery Phase.

- (1) For purposes of evaluating water-level recovery, the recovery phase duration will be equal to the pumping phase duration. For example, if the pumping phase is 8 hours in duration, water levels 8 hours after the pump has been turned off will be compared to the pre-pumping static water level to assess recovery magnitude and degree of recovery.
- (2) If water-level recovery is less than 90% of full recovery at the end of a recovery phase of similar duration as the pumping phase, the applicant must show through standard/recognized aquifer test analytical methods and calculations that the well or wells are capable of full recovery. If full recovery cannot be shown or groundwater mining/dewatering has occurred, the applicant will need to review and adjust the proposed demand and/or extent of development as outlined in c(1) above.

e. Neighboring Wells.

- (1) If the drawdown is measured or projected to be more than 1 foot at any existing adjacent property well or along a boundary of the Lot in Question, the applicant's hydrogeologist must evaluate long-term potential impacts to adjacent properties based on the actual operating condition of wells in that zone or along that portion of the boundary of the Lot in Question.
- (2) If a drawdown of 5 feet or more (Note: This may be adjusted at the recommendation of the municipality's consulting hydrogeologist taking into account existing lot sizes adjacent to the Lot in Question and the lot sizes/extent of development/amount of demand proposed) is noted in any existing adjacent property well, or is projected at any boundary of the Lot in Question, then the aquifer will be deemed to have insufficient

transmissivity and capacity to support the proposed demand and/or extent of development. The applicant will be required to review and adjust the proposed demand and /or extent of development and well locations to ensure that drawdown will not exceed 5 feet at any boundary of the Lot in Question as outlined in c(1) above.

- f. Impacts to Streams and Wetlands. If drawdown is measured or projected to induce leakage from streams or wetlands such that base flow in these streams will be directly reduced or wetlands partially or entirely dewatered, then the proposed demand and/or extent of development must be reduced to prevent adverse impacts to stream flow and wetlands.
- g. Additional Testing. Any test that must be repeated, restarted, or re-conducted at a reduced demand, must satisfy all the requirements of this Ordinance including but not limited to re-notification of all property owners within 500 feet of the Lot in Question and resubmission of an aquifer test plan for Board approval prior to implementation of the test.
- h. Sealing of the Observation Wells. Pursuant to N.J.S.A. 58:4A, all observation wells installed as part of the aquifer testing shall be properly abandoned. A certified and licensed well driller shall abandon the wells in accordance with the requirements of N.J.A.C. 7:9D-3.1, et seq. The well abandonment forms shall be completed and submitted to the New Jersey Department of Environmental Protection, Bureau of Water Allocation (call 609-984-6831 for forms and information).

§ 159-32. Water quality evaluation.

- A. The purpose of the water quality evaluation is to determine that the groundwater used to supply a proposed use or development does not contain more than the maximum contaminant levels established by the NJDEP for drinking water quality. In the event that one or more constituents do not meet the applicable MCLs, standard treatment systems need to be readily available.
- B. Determination of water quality shall be in accordance with the following:
 - 1. Water quality shall be determined for each pumping well and on-site observation well as part of this program. Water samples from a pumping well used for the aquifer pumping test shall be collected during the pumping phase of that test. Water samples from the on-site observation wells shall be collected either 3 days in advance, or 3 days after, the pumping test has been completed. The

samples must be collected in accordance with the NJDEP Field Sampling Procedures Manual.

2. At a minimum, the samples shall be analyzed by an NJDEP-certified laboratory for: hardness, gross alpha particle activity, arsenic, iron, manganese, copper, lead, nitrate, e coli bacteria, and total and fecal coliform bacteria as well as any other element determined under the Private Well Testing Act, as may be amended or expanded by the Andover Township Board of Health or Sussex County Health Department. The samples shall also be analyzed for volatile organic compounds for which the USEPA or NJDEP has determined maximum contaminant levels using USEPA Method 524.2.
 3. During the pumping test, field measurements of pH, conductivity/total dissolved solids and temperature shall be made with calibrated instruments.
 4. If conditions on the Lot in Question or the history of the Lot in Question indicate the potential historic use of materials containing heavy metals, pesticides, herbicides, or other volatile or semi-volatile organic compounds at or near the Lot in Question, these analyses must also be conducted.
 5. Based on past historical operations at the Lot in Question or at nearby properties, the Board, in its discretion, may require additional analyses of the groundwater to assess current and potential future impacts. The results of the water sample analyses will be used to assess background (pre-development) water quality conditions.
- C. Water quality analyses shall be undertaken within 160 days of submission of an application for development or application for a permit.

§ 159-33. Fees.

The fees to the Township of Andover Land Use Board or Board of Adjustment shall be covered by the development application fees and escrow requirements set forth in Chapter 74, Land Use Procedures, Article VI, Fees and Costs. Fees to the Township of Andover Board of Health and the Sussex County Health Department shall be as required by those entities.

§ 159-34. Other requirements for major subdivisions.

- A. If a Lot is proposed to connect with a public or community water system, the applicant shall present proof of permission to connect with that system.
- B. If a Lot or Lots will utilize individual wells, the aquifer testing and hydrogeologic analysis and water quality requirements of this Section shall be met, where applicable. Moreover, 25 percent of the proposed wells shall have been constructed in accordance with all requirements of the Local and State Health Department as a condition of preliminary approval of any major subdivision and before submission of a final major subdivision application. The wells shall be constructed on every fourth lot

following the grant of preliminary approval so that in the event it is found that adequate water supply cannot be provided to a particular lot, that lot may be merged at the time of final approval with an adjoining lot that already has a dependable well. The applicant shall submit a letter from the Sussex County Health Department stating that all constructed wells meet County standards.

SECTION 2: Chapter 159, Subdivision of Land, shall be amended and supplemented by the addition of the following Appendices, which shall be enumerated as Appendix I through Appendix V.

APPENDIX I - Aquifer Test Procedures

1. The **first test phase** will involve the collection of background water levels prior to the start of the test. The **second test phase** will involve the pumping of water from the well and the monitoring of water-level drawdown in the observation and pumping wells. The **third test phase** will involve the measurement of water-level recovery in the observation and pumping wells after the pump has been shut down. This third phase of the test must, at a minimum, be the same length as the pumping phase.
2. The aquifer test (all three phases) shall not be conducted during a precipitation event or events in which total precipitation equals or exceeds 0.5 inches. Precipitation must be recorded with a National Weather Service acceptable rain gauge on site during all phases of testing and measurements for each day must be included in the hydrogeologic report. If precipitation occurs during the test, the applicant shall provide precipitation amounts and sufficient data to show that the precipitation did not recharge the aquifer during the test and impair the test results. If precipitation amounts exceeding 0.5-inches are recorded, the test may have to be repeated unless adequate data can be provided to assure the municipality's consulting hydrogeologist and the Board that the precipitation did not affect the water-level data collected during the aquifer test. The requirement to repeat the test will be at the Board's discretion.
3. The pumping equipment must be installed in the pumping well at least 24 hours prior to the start of the background phase.
4. Prior to starting the background phase, water levels in the test well and observation wells must be permitted to stabilize for a minimum of three days after all drilling activities are completed.
5. During the background phase, water levels should be collected at a minimum of one measurement per hour for the 24-hour period prior to the start of the pumping test. It is the applicant's responsibility to collect sufficient data to determine background conditions and to ensure that antecedent influences can be fully characterized. Barometric measurements and additional water-level measurements can be made by the applicant to evaluate the change in water levels resulting from barometric pressure changes and/or influences from off-site pumping.
6. On the day of the pumping phase, water levels shall be collected from the pumping and observation wells to determine static water level conditions prior to the start of pumping. Water levels in wells on neighboring properties should be allowed to stabilize to at or near static prior to the start of pumping. For any observation well which has been pumped within the 24 hours preceding the test, two depth-to-water measurements, at least 1 hour apart, shall be collected to assess if the well has fully recovered prior to the start of pumping.
7. When the aquifer test is started, the pumping flow rate shall be adjusted, within the first several minutes of pumping, to a uniform (constant) pumping rate as required for a constant-rate test and in accordance with the approved aquifer test plan. The flow rate shall not vary by more than 10 percent throughout the test. If the flow rate fluctuates

more than 10 percent, the test may be deemed invalid and the applicant will be required to repeat the notification and testing process.

8. Water-level measurements during the pumping phase of the test shall be collected in accordance with **Table V-1**. This same schedule shall be followed for the recovery phase of testing upon shut down of the pump in the test well.

Time Since Pumping Began or Stopped	Test Well	Observation Wells
0 to 5 minutes	0.5 minutes	0.5 minutes
5 to 10 minutes	1 minute	1 minute
10 to 30 minutes	2 minutes	2 minutes
30 to 60 minutes	5 minutes	5 minutes
60 to 120 minutes	10 minutes	10 minutes
2 to 24 hours	30 minutes	30 minutes

Aquifer Pumping Test Rate and Duration:

The rate and duration of the aquifer test will depend upon the size of the proposed development and/or the expected average and peak daily demands for water.

1. The average daily and average yearly water demand for human consumption within the Lot in Question must be determined according to the guidelines in N.J.A.C. 7:10-12.6. Demand calculations must further include irrigation systems, if proposed, and water usage for filling of swimming pools and all other demands. The peak-day demand is twice the average daily demand. For non-residential developments, peak-day demand must include seasonal factors.
2. The pumping phase must simulate peak-day demand and therefore, the pumping phase duration is not to extend more than 24 hours. The minimum pumping rate is calculated by dividing the peak-day demand by 1440 minutes per 24-hour period. If the well yield is sufficient, shorter pumping periods can be used, but should be not less than 8 hours in duration.
3. If the demand exceeds 100,000 gallons per day, a New Jersey Water Allocation Permit or Agricultural Water Use Certification, as applicable, must be obtained from the New Jersey Department of Environmental Protection.
4. For mixed use developments containing two or more of the following components: residential, nonresidential and agricultural, each component shall be tested separately. Wells installed for the residential portion must be used as observation wells for the nonresidential and/or agricultural well testing and wells installed for nonresidential use must be used as observation wells for the residential and/or agricultural well testing.
5. The pumping rate will be determined by equipping the discharge pipe with a calibrated flow meter to measure flow rate and determine total volume pumped from the well. The calibration certification for the meter must be submitted to the Board. If the meter has not been calibrated within one year of the testing date, the test must be repeated.
6. The discharge shall be directed so that it leaves the Lot in Question without infiltrating to the aquifer. The pumped water discharge location must be at least 200 feet from the pumping well. Any and all permits required by the NJDEP and/or local authorities for the discharge of pumped water must be obtained prior to starting the test.

APPENDIX II - Observation Well Requirements - Well Testing

1. The number of observation wells required per aquifer test will depend on the proposed number of new lots or dwelling units and/or proposed nonresidential or non-exempt agricultural water demand. New and existing observation wells may be located such that they can be used as future water-supply wells but they shall be located in such a manner that they will yield the most accurate information concerning the aquifer.
2. Observation wells shall be completed to similar depths as the pumping well.
3. During all three phases of the aquifer test, water must not be withdrawn from an observation well. Observation wells cannot be pumped during the aquifer test. Therefore, if an existing well is to be used as an observation well to satisfy the requirements listed below, the pump in the well must remain off during all three phases of testing.
4. Observation wells must be located parallel and perpendicular to strike of the primary regional fractures and those intersected by the tested well. Additional observation wells should be located to evaluate potential secondary fractures and impacts to adjacent properties.
5. A fracture trace analysis showing the location and orientation of fracture lineaments must be included with the **Aquifer Test Plan**. This same analysis with additional information regarding septic system locations must be included in the **Final Hydrogeologic Report**. The fracture trace analysis must be used to identify all observation wells on the Lot in Question and to identify neighboring property owner's wells to be monitored during the test.
6. All wells must be located in accordance with the minimum distances required by N.J.A.C. 7:10-12.12.
7. One observation well shall be located within 200 feet of the test well and at least one observation well shall be located along a fracture trace or preferential fracture direction between 200 and 500 feet from the pumping well.
8. For residential developments of two or more new lots or dwelling units, the number of observation wells shall be as shown in **Table VI-1**. Although water levels will be measured and recorded in the pumping well, and these data must be submitted with the hydrogeologic report, the pumping well shall not serve as one of the observation wells required below.

Table VI-1: Observation Well Requirements for Residential Developments	
Number of Proposed New Lots or Dwelling Units	Number of Observation Wells
2 to 5	2 (minimum of 1 new well within Lot in Question)
6 to 25	3 (minimum of 2 new wells within Lot in Question)
26 to 49	5 (minimum of 4 new wells within Lot in Question)
50 or more	Test proposal submitted to Board for review and approval

9. For nonresidential developments or expansions thereof leading to a total anticipated daily demand exceeding 800 gallons per day on the Lot in Question, or for non-exempt agricultural uses, the number of observation wells shall be as shown in **Table VI-2**. Although water levels will be measured and recorded in the pumping well, and these data must be submitted with the hydrogeologic report, the pumping well shall not serve as one of the observation wells required below.

Table VI-2: Observation Well Requirements for Nonresidential and Non-Exempt Agricultural Uses	
Average Demand (gallons per day)	Number of Observation Wells
800 to 1,999	2 (minimum of 1 new well within Lot in Question)
2,000 to 9,999	3 (minimum of 2 new wells within Lot in Question)
10,000 to 99,999	5 (minimum of 2 new wells within Lot in Question)
100,000 or more	Obtain NJDEP Water Allocation Permit or Water Usage Certification. All aquifer testing plans to be submitted to both NJDEP and the Board for review and approval.

10. The observation wells and the pumping well must have a geologic log describing the depth and types of soils and rocks encountered and the depth and yields of all water-bearing fracture zones. The logs must include static water-level measurements and total yield estimates for each well.

11. Pursuant to N.J.S.A. 58:4A, all observation wells installed as part of the aquifer testing shall be properly abandoned. A certified and licensed well driller shall abandon the wells in accordance with the requirements of N.J.A.C. 7:9D-3.1, et seq. The well abandonment forms shall be completed and submitted to the New Jersey Department of Environmental Protection, Bureau of Water Allocation (call 609-984-6831 for forms and information).

APPENDIX III - Nearby Well/Spring Owners - Notification Requirements and Procedures

Notification:

1. Owners of existing wells and springs on lots located within 500 feet of a boundary of the Lot in Question shall be given an opportunity to have their wells/springs monitored during the aquifer test.
2. Such opportunity shall be given by the applicant by notice via certified mail and shall state the time and place of the aquifer test. A notice acceptable to the municipality is included in **Appendix VIII – Notice of Aquifer Test - Time and Place**.
3. The notice shall indicate that such existing well may be monitored, if agreed to by the well owner, provided the well is readily accessible. Such notice shall indicate that the existing well owner must respond within seven (7) days of notice receipt and the applicant's responsibility is to monitor up to three (3) wells on properties located within 500 feet of the boundaries of the Lot in Question.
4. The applicant shall provide a certificate of insurance for itself and all contractors utilized and pay all costs associated with the monitoring of any existing residential well.
5. Prior to monitoring, all buried wells must be raised to a minimum of twelve inches above grade to allow access and retrofitted with pitless well adapters etc. per N.J.A.C. 7:10-12.20 well head requirements.
6. All wells shall be chlorinated each time they are opened for service or monitoring, unless the owner specifically waives the requirement of chlorination in writing.
7. The costs of extending, restoring or replacing a well damaged as a result of testing shall be the responsibility of the applicant.
8. The applicant shall indemnify and hold the Township and its consultants and representatives harmless from any liability in connection with these testing requirements.

Response:

1. If the owner of a lot within 500 feet of a boundary of the Lot in Question decides to participate by agreeing to have his/her existing well monitored, such owner shall notify the applicant by certified mail.
2. Such response shall be provided within 7 days of receipt of the certified notice from the applicant.
3. If the applicant receives no response within the time provided, the response shall be deemed to be negative.
4. Protection of Monitored Wells and Selection of Wells for Monitoring.
 - (a) All reasonable efforts must be made to protect the potability of water from the monitored well.

(b) In the case when more than three property owners within 500 feet of the boundaries of the Lot in Question decide to participate and to have their existing wells monitored, only three must be monitored.

(c) However, if any of the property owners requesting monitoring have wells completed to a depth less than 100 feet, these wells must also be monitored in addition to three other wells.

(d) A map depicting the location of all wells to be monitored and a list of all property owners within 500 feet of the boundaries of the Lot in Question that requested monitoring is to be submitted to the Board's hydrogeologist for review and approval prior to implementing the test.

(e) The observation wells on neighboring properties should be selected to assess whether water-level drawdown impacts from the pumping well will extend beyond the boundaries of the Lot in Question in any direction.

(f) The Board reserves the right to retain a qualified hydrogeologist to review the proposed monitoring locations and to make recommendations to revise the locations to be monitored.

APPENDIX IV - Notice of Aquifer Test

Date

John and Mary Smith

_____,
_____, NJ _____

**Re: Aquifer Testing for Block _____, Lots _____
_____ Andover Township
Sussex County, New Jersey**

Dear Mr. and Mrs. Smith,

Aquifer testing for proposed groundwater withdrawals of up to _____ gallons per day from Block _____, Lots _____, has been tentatively scheduled for the week of _____, 20__.

_____ new wells are/will be located on Block _____, Lots_____, the Lot in Question. The purpose of the wells is _____. One of these wells will be pumped and the remaining ___ wells will be monitored to determine aquifer coefficients and interference effects as per Section _____ of the Andover Township Land Use Ordinance. All aquifer test activities will be conducted in accordance with this Ordinance.

Your property is located within 500 feet of a boundary of the Lot in Question, and, in accordance with the Andover Township Land Use Ordinance, you are hereby notified of the pending aquifer test. Based on Andover Township's Land Use Ordinance, you may request that the water level in your well be monitored during the aquifer test.

If your well is monitored, the water-level measurements will be used to directly determine water-level drawdown interference effects from the proposed new wells and/or increased groundwater withdrawals on your well. If your well is not monitored, then the applicant's hydrogeologist and the Township's appointed hydrogeologist will calculate potential water-level drawdown interference effects on your well from the data obtained from other wells observed during the test, however such calculation will only be a hypothetical calculation.

If you would like to participate in the monitoring of water levels during the aquifer test, please sign and return the enclosed Access Agreement form. The Access Agreement form should be returned to _____ on or before _____, 20__. In addition, please include copies of all well construction details and a geologic log that you may have for your well. Based on the level of response to this request and the well details/geologic log, not all well owners that request monitoring may be included in the test. The Township's Land Use Ordinance requires that the developer select three of the nearest wells for monitoring. However, if your well is completed to a depth of 100 feet or less then the developer must also monitor your well, if you so request.

If your well is selected for monitoring during the aquifer test, the applicant's hydrogeologist will conduct the following activities on your well:

1. Collect a pre-test water sample from a tap such as at your kitchen sink. The water sample will be analyzed for the presence/absence of bacteria in your well water.

2. Remove the top of your well to gain access. All equipment placed into your well for the test will be cleaned with a disinfectant to prevent the introduction of bacteria into your well.
3. Install access tubing (dip tube) into the well, if necessary, to prevent the accidental entanglement of measuring equipment with pump discharge piping and pump wiring.
4. Install a pressure transducer with a data logging device in the dip tube. This instrumentation will be used to measure water level changes in your well and will be installed at least 24-hours before the start of pumping.
5. Install a temporary cover over your well to prevent rainwater or foreign matter entering your well.
6. Periodically check your well, during the aquifer test, to directly measure water levels with an electronic measuring device or to download data from the pressure transducer.
7. Remove the pressure transducer and dip tube installed in your well for the aquifer test.
8. Add sufficient chlorine to your well to disinfect your well prior to replacing and securing the cap on your well. The water in your house should be run at all taps to ensure adequate disinfection of the entire water supply system. After chlorine is noted at each tap, an outside tap can be used to further pump the well and dissipate the chlorine. The addition of chlorine will most likely result in a chlorine odor for one or more days.
9. Collect a post-test sample from the tap sampled prior to the test and analyze the sample for the presence/absence of bacteria.

If you require additional information regarding the aquifer test, please contact _____,
Township _____ at _____.

Sincerely,

Access Agreement

All expenses related to the performance of the aquifer test will be borne by the applicant (owner/developer) for Block ____, Lot(s)____. However, access to neighboring wells must be provided by the owners of those properties. All reasonable precautions will be observed by the applicant, the applicant's hydrogeologist, and the well driller to avoid damage to any adjacent residential property including both the well itself and its surroundings.

The owner of the neighboring well, who signs below, agrees to provide access to a commonly used tap for the collection of water samples prior to and after testing for bacteria analysis. After the initial water sample is collected, the well will be opened to permit access to measure water levels and the well will remain unsealed during the testing process which will be a maximum of 72 hours. A dip tube may be installed within your well to facilitate the measurement of water levels.

All equipment placed in your well will be cleaned to minimize the potential introduction of bacteria. However to ensure that no bacteria are accidentally introduced into your well during the testing process, chlorine will be added to your well at the conclusion of the testing procedures. If you would prefer that chlorine not be added to your well, please check the box below the signature line.

With your signature and submittal of this form, you request participation in the monitoring of water levels during the aquifer test on the Lot identified as Lot ____, in Block ____, in accordance with the Andover Township Land Use Ordinance, Section _____, and that you have read and accept the requirements of this form.

Property Owner

Date

Please **do not add** chlorine to my well at the conclusion of testing. I understand and will accept responsibility that bacteria may have been accidentally introduced into my well.

APPENDIX V – Final Hydrogeologic Report Check List

1. Water Level Data from Three Phases of Testing

Electronic _____

Hand-Held _____

2. Aquifer Hydraulic Characteristics Calculations

Transmissivity _____

Storativity _____

Pumping Cone of Influence _____

Long Term Sustained Yields of Wells _____

Potential Impacts to Nearby Wells _____

Water-Level Recovery Analysis _____

3. Description of Aquifer

4. Detailed Evaluation of Water Supply Demand (Average and Peak Demand for all anticipated uses)

5. 1000- foot Well Inventory _____

6. Figures Showing:

Geology and Hydrology (including mapping of bedrock structural characteristics)____ _____

Topography _____

Groundwater Flow _____

Development Plans _____

7. Water Quality Testing Results

Summary Tables _____

Laboratory Analytical Reports _____

8. Sewage Disposal Impact

Site Plan Showing Septic Field, Well, and Fracture Trace Locations

Nitrate Dilution Analysis _____

Leach Field Locations _____

Map at 1 inch = 200 feet _____

9. Well Drilling Contractor

Name: _____

License Number _____

10. NJDEP Well Records

SECTION 3. Chapter 131, Site Plan Review, Article III, Applicability of Site Plan Requirements, Section 131-8, Preliminary approval; site plan details, is hereby amended and supplemented with the addition of Subsection (F), to read as follows:

§ 131-8. Preliminary approval; site plan details.

F. If applicable to the site plan application as set forth in Section 159-30 of this Code, the applicant shall satisfy the water supply and water quality requirements as further set forth under Article VII of Chapter 159, Subdivision of Land.

SECTION 4: The Township Clerk is hereby directed to give notice at least ten (10) days prior to the hearing on the adoption of this Ordinance to the Sussex County Planning Board and to all other persons entitled thereto pursuant to N.J.S.A. 40:55D-15 and N.J.S.A. 40:55D-63 (if required). Upon the adoption of this Ordinance after public hearing thereon, the Township Clerk is further directed to publish notice of the passage thereof and to file a copy of the Ordinance as finally adopted with the Sussex County Planning Board as required by N.J.S.A. 40:55D-16.. The Clerk shall also forthwith transmit a copy of this Ordinance after final passage to the Township Tax Assessor as required by N.J.S.A. 40A9-2.1.

SECTION 5: Severability. If any paragraph, section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid or unconstitutional by any Court or administrative agency of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining paragraphs or sections hereof.

SECTION 6: Inconsistency. All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

SECTION 7. This Ordinance may be renumbered for purposes of codification.

SECTION 8: Effective Date. This Ordinance shall take effect following final adoption and publication in accordance with applicable law.

PLEASE TAKE NOTICE that the Andover Township Committee approved the above ordinance on first reading at its Regular Meeting held on March 24, 2008. It will be considered on second reading for final adoption and will have a public hearing at a Regular Meeting beginning at 7:30 p.m. on April 28, 2008 at the Andover Municipal Building, 134 Newton-Sparta Road, Newton, NJ 07860-2746. At that time an opportunity will be given for all interested citizens to be heard.

ATTEST:

Vita Thompson, Clerk

TOWNSHIP OF ANDOVER
COUNTY OF SUSSEX
STATE OF NEW JERSEY

Gail Phoebus, Mayor

TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY

ORDINANCE #2008-05

AN ORDINANCE OF THE TOWNSHIP OF ANDOVER, COUNTY OF SUSSEX, STATE OF NEW JERSEY AMENDING AND SUPPLEMENTING CHAPTER 159, SUBDIVISION OF LAND, AND CHAPTER 131, SITE PLAN REVIEW, ARTICLE III, APPLICABILITY OF SITE PLAN REQUIREMENTS, WITH THE ADDITION OF REGULATIONS PERTAINING TO THE TESTING OF WELLS

NOTICE OF FINAL ADOPTION

NOTICE is hereby given that the above entitled ordinance was introduced and passed on first reading at a meeting of the Township Committee of the Township of Andover held at the Municipal Building on the 24th day of March 2008. The same came up for final adoption at a meeting of the Township Committee of the Township of Andover held at the Municipal Building on the 28th day of April 2008, and, after all persons present were given an opportunity to be heard concerning same, it was finally passed and adopted and will be in full force in the Township according to law.

Vita Thompson, R.M.C.
Municipal Clerk