

LAND DEVELOPMENT

*22 Attachment 1*

**APPENDIX A**

See N.J.A.C. 7:10A-1.14, Table II(N).

**APPENDIX B**

**New Jersey Department of Environmental Protection (NJDEP) Delineations of Well Head Protection Areas (WHPAs) around Public Community Water Supply Wells**

Excerpts from:

New Jersey Geological Survey, New Jersey Department of Environmental Protection, New Jersey Public Community Water Supply Well Head Protection Areas, Edition 2, Geospatial Data Presentation, New Jersey Digital Data Series, DGS02-2, dated 18 June 2002.

**Description of WHPAs:** A Well Head Protection Area (WHPA) is an area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of groundwater captured by a well pumping at a specific rate over two-, five-, and twelve- year periods of time. The area of capture is defined using line boundaries and polygon areas generated with the ARC/INFO Geographic Information System (GIS). GIS coverages are produced for each PCWS well and for the set of all PCWS wells in a county using the ARC/INFO UNION command on individual coverages. WHPA delineation methods are described in "Guidelines for Delineation of Well Head Protection Areas in New Jersey" (<http://www.state.nj.us/dep/njgs/whpaguide.pdf>). An ARC/ INFO point coverage of associated PCWS wells is available as N.J. Geological Survey Digital Geodata Series DGS97-1 (<http://www.state.nj.us/dep/njgs/geodata/dgs97-1.htm>).

**Internet Address:**

(<http://www.state.nj.us/dep/njgs/geodata/dgs02-2.htm>).

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### **Process Description:**

The WHPA delineations were created using the methods outlined in "Guidelines for Delineation of Well Head Protection Areas in New Jersey" available as a download at <http://www.state.nj.us/dep/njgs/whpaguide.pdf>. Coordinate files delineating each WHPA boundary were generated using a custom MS-DOS program on-file at the offices of the N.J. Geological Survey. The MS-DOS coordinate files are formatted as ARC/INFO coverages and contain line attributes specifying each time of travel tier for groundwater to the well. Each coverage was built as both a line and a polygon coverage having both arc and polygon attributes for the three Time of Travel (TOT) tiers. PCWS wells were located using a Global Positioning System (GPS). WHPA delineations are considered to have an accuracy of plus or minus 40 feet in any direction from the mapped location. WHPA delineations for wells completed in the glacial sand and gravel aquifer were clipped to a custom hydrologic boundary. Sand and gravel aquifers occur where deposits are more than 50 feet thick. The hydrologic boundary is generated as a 2000 foot buffer around the polygon representing the contact of the sand and gravel aquifer for those areas where the aquifer is less than 50 feet thick. This distance was selected based on an average distance between the 50 and 100 foot thickness contours

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of the sand and gravel aquifer. The average inter contour distance was doubled to provide a conservative estimate of the thickness variation. Therefore, any portion of the WHPA delineation that lies beyond this extent is clipped.

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**Figure 1**  
**(Code Subsection 22-137.5)**

