

## MINUTES

7:30 PM

**PRESENT:** R. Dodds  
T. Kratzer  
P. Lubitz  
S. McNicol  
E. Niemann  
J. Strasser  
M. Syrnick  
D. Banisch, Planner  
D. Pierce, Attorney

**ABSENT:** J. Mathieu  
D. Floyd, Alt #1

### CALL TO ORDER

The meeting was called to order by R. Dodds at 7:32 PM.

### NOTIFICATION

In order to ensure full public participation at this meeting, all members of this Board, and members of the public are requested to speak only when recognized by the Chair so that there is no simultaneous discussion or over-talk, and further, all persons are requested to utilize the microphones which are provided for your use by the Township. Your cooperation is appreciated.

Notification of the time, date and place of this meeting has been published in the Hunterdon County Democrat and Courier News, and has been posted in the Kingwood Township Municipal Building at least 48 hours prior to this meeting and has been filed with the Municipal Clerk.

### NEW AND PENDING MATTERS

#### Resolutions

Resolution No. 2012-05 -Block 38, Lots 17, 18 & 19.01 – EffiSolar – County Road 519 – Extension of Time to File

J. McCarthy, attorney for the applicant, was present this evening.

It was moved by P. Lubitz, seconded by S. McNicol and carried to adopt **Resolution No. 2012-05 -Block 38, Lots 17, 18 & 19.01 – EffiSolar – County Road 519 – Extension of Time to File**. All members present voted **AYE** on **ROLL CALL VOTE**, except T. Kratzer, who **ABSTAINED**.

Resolution No. 2012-06 -Block 21, Lot 1 – Syncarpha Alethea II, LLC – Barbertown Point Breeze Road – Preliminary Site Plan

It was moved by P. Lubitz, seconded by S. McNicol and carried to adopt **Resolution No. 2012-06 -Block 21, Lot 1 – Syncarpha Alethea II, LLC – Barbertown Point Breeze Road – Preliminary Site Plan.** All members present voted **AYE** on **ROLL CALL VOTE**, except T. Kratzer, who **ABSTAINED**.

**PRIVILEGE OF THE FLOOR**

C. Compton inquired if the Rescue Squad could request from Syncarpha Alethea to purchase a gator for them. The one they purchased for the fire department will not be appropriate for them as it has to be set up for extrication. R. Dodds responded the developer has been informed that they will have to have a safety plan reviewed by the emergency responders and suggested the Rescue Squad bring up the subject at that time. She was advised to contact E. Hill.

**Land Use Element – Discussion**

D. Banisch reviewed the following memo he provided to the Board:

Among the issues discussed was a recommendation, in the draft Land Use Plan, to reduce permitted density and increase the minimum lot size requirement in the AR-2 Zone. The Board engaged briefly in a discussion and raised questions involving science vs. policy in relation to assessing a possible recommendation for a reduction in permitted density. This included discussion of the nitrate dilution model as one factor in assessing density.

It was explained that the NJDEP Nitration Dilution Model was utilized to estimate recommended minimum lot sizes for soils in Kingwood Township, which are presented in the draft Land Use Plan. A rezoning recommendation was presented to increase the minimum lot size to 10-acres in certain areas of the Township, based upon results of the Model. One of the variables used in the Model is the number of persons per household and annual nitrogen loading introduced by individual on-site septic systems. The default in the Model is 3 persons per household. As presented in the draft Land Use Plan, this nitrate dilution model input was modified to use 4 persons per household for Kingwood Township’s soils, which is the nitrate loading factor used by the Highlands Council in the Regional Master Plan. An explanation was requested as to why this adjustment was utilized. A rationale is provided in the Nitrate Dilution Estimates section below.

In addition to the nitrate dilution discussion, a point was raised questioning policies that may support a possible rezoning recommendation for all or portions of the AR-2 Zone. The Planning Board has developed a series of policy statements in various planning documents that have been adopted recently, which identify policy regarding farmland preservation, land stewardship, natural resource conservation and open space planning. A discussion related to minimum lot size requirements necessary to protect agriculture and farming is included below for the Planning Board’s consideration.

**Agricultural Protection Zoning** (suggested policy statement for consideration)

One of the most meaningful and productive means to retain viable agriculture in Kingwood Township is the preservation of prime and farmland-capable soils, which have long been recognized as one of the Township’s most valuable natural resource assets. Protection of valuable agricultural soils from development has been achieved through the Township’s land development regulations and somewhat remote location, relative to the more suburban communities of the region to the east and northeast. The rich

agricultural history of the Township that continues today is a testament to the productive capacities of these soils. While soil of this magnitude is not often considered a non-renewable resource, the removal and disturbance of such rich soils forever alter the long-term agricultural base and once removed cannot be replaced. If properly managed, this natural resource will yield benefits to future generations of farmers and consumers. The survival of Kingwood Township's prime and farmland capable soils as a productive natural resource depends on managing the resource properly and preventing the loss of productive soils to development pressures that are expected to continue well into the future.

Approximately 25% of Kingwood Township's land base is characterized as prime and statewide important farmland, according to data provided by the NJDEP entitled Soil Survey Geographic Database (SSURGO), distributed through the Natural Resource Conservation Service (NRCSA). The Township's Statewide Important Soils account for 70% of all soils in the municipality. Despite the fact that there have been a series of suburban developments that have consumed a portion of these natural resources, much of this natural resource base survives intact, and limiting its loss in the future assumes a high priority in this Land Use Plan.

In New Jersey, a parcel cannot qualify for farmland assessment unless it contains at least five (5) acres, and if the dwelling is included on the property, this minimum increases to six (6) acres. However, since some nonproductive lands may not qualify for farm assessment, a six (6) acre minimum will not assure the potential for preferential farmland tax assessment.

Conflicts between farm and non-farm uses can frequently result in a loss of farmland or farm uses. Agricultural retention objectives have prompted many localities to adopt large lot zoning strategies to retain agricultural lands for farm use and to discourage non-farm uses in agricultural areas. If the farmland base is not protected in the near term, farming may decline sharply with a critical mass of farmland converted to non-farm uses. Viable agriculture cannot be expected to succeed if new development proceeds according to the currently permitted density. Such zoning permits the entry of large numbers of non-farm residences and the conflicts they inevitably bring.

New Jersey courts have upheld 10-acre agricultural zoning as a reasonable means to retain agriculture and protect the agricultural land base of a community. Bedminster Township in nearby Somerset County and East Amwell Township, Hunterdon County are two examples where agricultural zoning strategies were found to be valid use of municipal zoning powers when zoning validity was challenged. Additionally, environmental protection weighed heavily into the Bedminster decision, which involved lands that were included in the Township's Environmentally Sensitive Planning Area. These court decisions are consistent with appropriate agricultural land use strategies for the protection of agricultural areas identified by the National Agricultural Lands Study (NALS) (Coughlin & Keene, 1981) which found that half of the communities surveyed relied on a large minimum lot as the principal density control in the agricultural zone. Most of these communities were in or adjoining metropolitan areas. Within the communities surveyed by NALS, minimum lot sizes ranged from ten (10) acres to six hundred forty (640) acres.

Kingwood Township's natural resource base includes many of the agricultural and environmentally-sensitive land characteristics of its neighboring Highlands Planning Area municipalities, such as Alexandria and Franklin Townships, which includes a vast area of environmentally sensitive agricultural lands. Similarly, East Amwell Township is a community in the SDRP-designated Rural Planning Area where the Courts have found that the basis for that Township's 10-acre zoning is a valid and well-reasoned land management

strategy to protect its agricultural base of relatively large lots, consistent with this SDRP Rural Planning Area designation.

It is noteworthy that the NJ Supreme Court upheld 40-acre zoning in the Pinelands in what is known as the Gardner decision. In Gardner, the Court found that a 40-acre minimum lot size requirement was found to be valid under the policies of the Pinelands Comprehensive Management Plan, a regional land management plan that focuses growth into areas that are appropriate and designated for higher densities, while maintaining open areas for continued viable agriculture and natural resource protection, such as the 40-acre zoning district which was the subject of the court challenge. This is a similar situation to the State Plan policies for Planning Area 4, 4B and Planning Area 5, as found throughout Kingwood Township, which are designated for protection of large contiguous environmentally sensitive and agriculturally productive areas, and where zoning is an effective technique to achieving these and groundwater resource protection goals. Courts have also upheld Highlands Preservation Area zoning, which includes among its purposes the retention of agricultural land and includes a minimum lot size requirement for agricultural land of 25-acres.

In 1997, The American Farmland Trust (AFT) examined a range of approaches to retaining farmland, and recommended “**Agricultural Protection Zoning**” (APZ) as a zoning technique used **to support and protect farming by stabilizing the agricultural land base**. The AFT is a nationwide nonprofit organization dedicated to protecting agricultural resources, founded by a group of concerned farmers in 1980. AFT's mission is to stop the loss of productive farmland and to promote farming practices that lead to a healthy environment. AFT defines APZ as ordinances that allow no more than one house for every 20 acres, support agricultural land uses and significantly restrict non-farm land uses.

As described by AFT, APZ is a zoning technique used to support and protect farming by stabilizing the agricultural land base. APZ designates areas where farming is the desired land use, generally on the basis of soil quality as well as a variety of locational factors. Other land uses are discouraged. APZ ordinances vary in what activities are permitted in agricultural zones. The most restrictive regulations prohibit any uses that might be incompatible with commercial farming. The density of residential development is limited by APZ. Maximum densities range from one dwelling per 20 acres in the eastern United States to one residence per 640 acres in the West.

APZ ordinances establish procedures for delineating agricultural zones and defining the land unit to which regulations apply. They specify allowable residential densities and permitted uses, and sometimes include site design and review guidelines. Some local ordinances also contain right-to-farm provisions and authorize commercial agricultural activities, such as farm stands, that enhance farm profitability. Occasionally, farmers in an agricultural protection zone are required to prepare conservation or farm management plans.

The definition of APZ varies with jurisdiction and by region of the country. A minimum lot size of 20 acres, combined with other restrictions, may be sufficient to reduce development pressures in areas where land is very expensive and farming operations are relatively intensive. Several county APZ ordinances in Maryland permit a maximum density of one unit per 20 acres. In areas where land is less expensive and extensive farming operations such as ranches predominate, much lower densities may be required to prevent fragmentation of the land base. In Wyoming and Colorado, counties are not permitted to control subdivision of lots that are larger than 35 acres. The 35-acre provision has led to the creation of hundreds of 35-acre "ranchettes" in both states, fragmenting ranches into parcels that are too small for successful commercial ranching.

Many towns and counties have agricultural/residential zoning that allows construction of houses on lots of one to five acres. Although these zoning ordinances permit farming, their function is more to limit the pace and density of development than to protect commercial agriculture. In fact, such ordinances often hasten the decline of agriculture by allowing residences to consume far more land than necessary. AFT defines APZ as ordinances that allow no more than one house for every 20 acres, support agricultural land uses and significantly restrict non-farm land uses. Kingwood's rich, fertile and productive farmland is worthy of such protection. The amendment to the Agricultural Residential (AR) District designation identified for Kingwood Township in this plan is not intended to slow the pace of development, but rather maintain large contiguous areas of farmland for continued agricultural use, protect existing critical habitat and groundwater resource for the survival of these resources into the long-term future.

The courts first validated zoning as a legitimate exercise of police power in the 1920s, giving local government broad authority to regulate local land use. Rural counties in California, Pennsylvania and Washington began using zoning to protect agricultural land from development during the mid-1970s. In 1981, the National Agricultural Lands Study reported 270 counties with agricultural zoning. In 1995, an informal AFT survey found nearly 700 jurisdictions in 24 states with some form of APZ.

APZ helps reserve the most productive soils for agriculture. It stabilizes the agricultural land base by keeping large tracts of land relatively free of non-farm development, thus reducing conflicts between farmers and their non-farming neighbors. Communities also use APZ to conserve a "critical mass" of agricultural land, enough to keep individual farms from becoming isolated islands in a sea of residential neighborhoods. APZ also helps promote orderly growth by preventing sprawl into rural areas, and benefits farmers and non-farmers alike by protecting scenic landscapes and maintaining open space. Kingwood's remaining agricultural landscape may well be an appropriate candidate area for the application of Agricultural Protection Zoning.

APZ can also limit land speculation, which drives up the fair market value of farm and ranch land. By restricting the development potential of large properties, APZ is intended to keep land affordable to farmers. A strong ordinance can demonstrate to farmers that the town or county sees agriculture as a long-term, economically viable activity, instead of an interim land use. APZ also helps promote orderly growth by preventing sprawl into rural areas, and benefits farmers and non-farmers alike by protecting scenic landscapes and maintaining open space, and in Kingwood Township, protecting groundwater as a critical resource that may be used in the future to respond to the ever increasing demand for water by New Jersey's residents.

APZ also protects public equity. Webster's New World Dictionary defines "equity", in part as fairness; impartiality; justice; and anything that is fair or equitable." In Kingwood Township, there has been significant public investment in preserving farmland and open space. Steady growth in preserved farmland demonstrates the public interest in preserving farmland, which will be best served through APZ strategies that reinforce these public expenditures and protect the Township's agricultural base. Zoning strategies should be implemented that effectively assure the protection of these limited resources, protect public equity, build upon prior public investments and enhance quality of life.

## BENEFITS

- APZ is an inexpensive way to protect large areas of agricultural land.
- By separating farms from non-agricultural land uses, APZ reduces the likelihood of conflicts between farmers and non-farming neighbors.
- APZ helps prevent suburban sprawl and reduces infrastructure costs.
- Compared to purchase of conservation easement and transfer of development rights programs, APZ can be implemented relatively quickly.
- APZ is easy to explain to the public because most landowners are familiar with zoning.
- APZ is flexible. If economic conditions change, the zoning can be modified as necessary.

Source: American Farmland Trust, *Saving American Farmland: What Works* (Northampton, Mass., 1997).

### Nitrate Dilution

By way of context, Kingwood Township lies immediately adjacent to the Highlands Region. While regional development pressure has abated significantly since the onset of the Great Recession, Highlands regional land use policies are in place in neighboring communities that call for large minimum lot sizes, which may serve to draw growth pressure to the Township once regional growth re-emerges in the future. While it is difficult to predict when the residential development market may recover significantly enough to exert pressure in the region, this is not the first economic cycle in which land development pressures have temporarily abated.

The Highlands Act and regional land use policies focus on protecting regional water supplies that provide water to approximately 8 million residents. Much of the Highlands Region surface water drains to the Delaware River, as do all of the Township's surface water courses. While the Township is fortunate to have avoided inclusion in the Highlands Region when the boundaries were drawn by the State, Kingwood Township's agricultural base, biodiversity, environmentally sensitive lands and water resources contribute to the welfare of the region.

There are a variety of variables in the NJDEP Nitrate Dilution Model that was developed the New Jersey Geological Survey that is utilized to assess carrying capacity or areas served by individual subsurface sewage disposal systems and determine recommended minimum lot sizes.

In the initial draft of the Land Use Plan, a table is provided identifying recommended minimum lot sizes for Township soils, based upon the use of the NJDEP Nitrate Dilution Model. The population density input was varied from the NJDEP standard of 3 persons per household to 4 persons per household. Otherwise, the standard input variables in the NJDEP model were used, including:

1. Population density: 4 persons per household (vs. 3 as the standard)
2. Human NO<sub>3</sub> (Nitrate) loading rate: 10 lbs. per person/per year
3. NO<sub>3</sub> target: 2 parts/million (2 mg/l.)
4. Soil: variable
5. Municipality: Kingwood Township
6. Under average conditions, recharge on the pervious portions of the lot (approx., as determined by GSR-32 methodology), and
7. Net average recharge, (adjusted for impervious coverage).

1. The Population density input of 4 persons per household was utilized for Kingwood Township’s soils, based upon the Highlands Council’s use this standard versus the NJDEP standard of 3 persons per household. As explained in “Highlands Water Resources Technical Report Volume 1: Watersheds and Water Quality,” the Highlands derived this standard as follows:

“ . . . Considering only those New Jersey counties relevant to the Highlands Region, e.g. Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex, and Warren, the average household size is 2.8 people (U.S. Census Bureau, 2005).

None of these counties lie wholly within the Highlands Region, and some contain portions that are highly urbanized while others have large sections of agricultural and rural areas. Relying on county data alone may result in a skewed average household size; however, data for each individual municipality is not available. The municipal and Census Place Data (CDP) data was further analyzed to calculate the distribution of household size, e.g., 1-person, 2-person, up to 7 or more, relative to the total number of households per municipality and CDP. The percent of the residential population living in the households of 4 or more is as high as 40.1% within the municipalities and CDPs examined. The weighted average among total households is 30.6%. In addition, the majority of the households that contain 4 or more people are those that house 4 people. Therefore, a representative occupancy rate of 4 persons per household was used to establish a conservative loading per unit.”

Data from the 2010 Census identify higher occupancy rates in Kingwood Township’s housing stock than the regional averages cited by the Highlands Council. The percent of resident population living in households of 4 or more is 45% in Kingwood Township, as indicated in the table below:

**Source: US Census Bureau, 2010 Census**

<b>Total Population</b>	3,845			
<b>Average household size</b>	2.66			
<b>Average family size</b>	3.04			
<b>Subject</b>	Number	Percent		
<b>HOUSEHOLD SIZE</b>				
<b>Total households</b>	1,446	100.0		
<b>1-person household</b>	262	18.1		262
<b>2-person household</b>	536	37.1		1,072
<b>3-person household</b>	260	18.0		780
			<b>Total:</b>	<b>2,114</b>
<b>4-person household</b>	269	18.6	1076	
<b>5-person household</b>	84	5.8	420	
<b>6-person household</b>	21	1.5	126	
<b>7-or-more-person household</b>	14	1.0	98	
		Total:	<b>1720</b>	
		<b>Percent:</b>	<b>45%</b>	<b>55%</b>

[1] A household that has at least one member of the household related to the householder by birth, marriage, or adoption is a "Family household." Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. Responses of "same-sex spouse" were edited during processing to "unmarried partner."  
 [2] "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

2. The Human NO<sub>3</sub> (Nitrate) loading rate input used by DEP is 10 lbs. per person/per year, which was used in modeling the minimum lot size calculation for Kingwood Township. The Highlands Council identified

“several reported nitrate loading rates cited by the NJ Geological Survey (Hoffman and Canace, 2004) in their open-file report ‘A Recharge-Based Nitrate-Dilution Model for New Jersey.’. . . identifying a range from 5.4 to 14.2 pounds per person per year, with an average value of 9.8 pounds per person per year.

<u>Reported Nitrate Loading Rates</u>		
Data Source	Reported Parameter	Pounds/Person/Year
Laak, 1980	Total nitrogen	10.4
Ligman and others, 1974	Total nitrogen	14.2
Metcalf & Eddy, Inc., 1991	Total kejdahl nitrogen	9.9
Siegrist and others, 1976	Total nitrogen	5.4
U.S. EPA, 1980	Total kejdahl nitrogen	9.13

Accordingly, an average nitrate loading rate of 10 pounds/person/year was selected as a representative model input value. Combining this value with the 4 persons per septic, which exceeds the regional average of 2.8 persons per household, provides a conservative factor for total nitrate loading. This, coupled with the fact that any potential denitrification is assumed to be nonexistent, further introduces a conservative factor into the total nitrate mass estimated for a representative septic system. This conservative factor helps address any additional nitrate loading sources that may include lawn fertilizers and animal waste. One important mitigating factor to consider of these additional nitrate sources is that, unlike septic system effluent, these sources must first travel downward through the root zone in order to enter ground water. Plant uptake may further decrease nitrate mass during this journey.”

NJDEP utilizes the 10 lbs. per person per household standard in the Nitrate Dilution Model, which was used to compute minimum lot sizes for the Township.

3. The NO<sub>3</sub> target: 2 parts/million (2 mg/l.) used by NJDEP was not changed in modeling the minimum lot size calculation for Kingwood Township.

Kingwood Township lies immediately south of the Highlands Planning Area boundary. Kingwood Township’s immediate neighbors to the north include Kingwood Township, Holland Township and Franklin Township, portions of which are designated Highlands Planning Area. In these municipalities, the Highlands designates “Land Use Capability (LUC) Zones.” Three primary LUC’s are identified in the Highlands Plan,

which include the Existing Community, Conservation and Protection Zones, a brief summary describing each is provided below.

“The Existing Community Zone consists of areas with regionally significant concentrated development signifying existing communities. These areas tend to have limited environmental constraints due to previous development patterns, and may have existing infrastructure that can support development and redevelopment . . .”

The Conservation Zone consists of areas with significant agricultural lands and interspersed with associated woodlands and environmental features that should be preserved when possible.

The Protection Zone consists of high natural resource value lands that are important to maintaining water quality, water quantity and sensitive ecological resources and processes. Land acquisition is a high priority in the Protection Zone and development activities will be extremely limited; any development will be subject to stringent limitations on consumptive and depletive water use, degradation of water quality, and impacts to environmentally sensitive lands.”<sup>1</sup>

Were Kingwood Township situated in the Highlands Region lying immediately to the north of the municipality, the Township’s landscape could be best characterized as predominantly Conservation Zone and Protection Zone. Special protections would be afforded these areas under the regional plan. Minor inclusions of Existing Community Zone would also be designated, but only limited areas would carry this designation.

For the Conservation Zone and Protection Zone, the Highlands Council has identified nitrate dilution targets less than 2 parts per million for determining minimum lot size requirements (Conservation Zone: 1.87 ppm; Protection Zone: .72 ppm). These targets applied to four representative soil types in the Township would yield the following minimum lot size requirements, as determined using the NJDEP Nitrate Dilution Model, without any adjustment for annual groundwater recharge rate:

Soil	Area of Township (acres)	Acres/Septic 2 ppm - NO <sub>3</sub> target	Acres/Septic 1.87 - NO <sub>3</sub> target	Acres/Septic .72 - NO <sub>3</sub> target
Reaville	2,442.01	7.9	8.4	21.3
Penn	4,649.6	7.9	8.4	21.3
Chalfont	6,190.51	7.7	8.2	20.8
Abbottstown	1,567.17	7.8	8.4	21.2
Croton	2,291.99	N/A	N/A	N/A

The Highlands Council density calculation does not use the NJDEP’s standard groundwater recharge rates indicated by the GSR-32 models. “The original GSR-32 models were calibrated to thirty years of climate data measured at 32 climate stations in New Jersey. By using this relatively long historical period, the models captured average climatic conditions for New Jersey,”<sup>2</sup> which the Highlands Council “re-calibrated

<sup>1</sup> Page 111 – Highlands Regional Master Plan.

using climatic data spanning the New Jersey drought of record, the years 1961 through 1966<sup>2</sup> to introduce an additional conservative factor into the septic system density modeling. Adjustments of a similar nature to the model would yield still higher recommended minimum lot sizes for Kingwood Township.

T. Kratzer stated there was a ground water study performed by Dr. R. Horden in 1995. His variables for the groundwater nitrate dilution model are different than D. Banisch's and different than those of the GSR-32 model. (Discussed below) The nitrate concentration of 2 milligrams per liter was originally set at 5 milligrams per liter by DEP and was reduced to 2. The Hunterdon County Planning Board has presented the County average as 1.6. When Dr. Horden looked at well records from Kingwood Township he did not have a full record of every well that was available. From the set that he looked at, he came up with an average of 0.6 - 0.7 milligrams per liter. T. Kratzer is not sure if the Township is looking at surface water contamination from the nitrate or the groundwater level for suppressing methemoglobinemia, a toxic effect it can have on infants. Dr. Horden came up with 75 gallons per capita per day, DEP's regulations have it stated as 100 gallons per capita per day. 100 gallons per capita per day is used in the Township's well ordinance. Dr. Horden also used 2.74 per capita per dwelling unit which the Township knows is small compared to the amount of dwelling units the Township has with four or more bedrooms. P. Lubitz stated based on the census it is 2.6 per capita per dwelling. Dr. Horden used 200,000 gallons per day per square mile as a recharge estimate. This is where it becomes really tricky on how much actual recharge the Township is getting in this area. This will come out to be, according to DEP's recharge estimates, 10-12" per year. He has looked at it through the monitoring that has been done so far within the four municipalities, Kingwood, Raritan, Franklin and Delaware Townships, they are getting more of an estimate of less than 1" per year for recharge. This is aquifer recharge not groundwater recharge. Groundwater recharge does not mean aquifer recharge in the State regulations. He is looking at the amount of precipitation the Township is getting per storm event, the amount of runoff the Township is getting from a delineated drainage area, the land use and soil types and the evapotranspiration that was estimated by the State climatologist for Hightstown, Plainfield and New Brunswick. The results represent 90-100% evapotranspiration and runoff of precipitation (Note: this is from January through September). The recharge models refer to a groundwater recharge which means down to the root zone but does not mean into the aquifer which is where the 10-12" comes into play, the amount of water infiltrating to the recharge level. When aquifer recharge is reviewed, any type of impervious layers in the soil have to be considered, which will restrict it from getting to the root zone or below the root zone. He has reviewed plowpans and fragipans and at what depths they may be located. The NRCS took soil bore logs in Kingwood park and found that anywhere from 0-14" an impervious layer exists. The entire depth to bedrock is included when referring to infiltration and storage. The Township has 60-100% of the precipitation that falls to the ground running off per storm event, from preliminary study results. Estimates based on what the State has for the regulatory criteria and what is used for determining how much stormwater runs off and how much infiltrates for recharge are not site specific. They are not specific for most of Hunterdon County. M. Mulhall is a groundwater hydrogeologist and has done the hydrologic studies for Hopewell Township, East Amwell and Franklin Township. He has come up with estimates almost the same. He was looking at, as well as Dr. Horden, the amount of base flow for the streams to predict what would be the infiltration rate. The Lockatong Creek goes dry. The Lockatong Creek has not been noted to be dry even in the drought of record. The Township is losing the net water balance, extracting more than is being replenished. In M. Mulhall's report, he referred to 20 acres as reasonable estimate for getting enough

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<sup>2</sup> Highlands Water Resources Technical Report Volume 1: Watersheds and Water Quality

recharge to service the number of wells and users that currently exist. T. Kratzer and his wife have looked at Dr. Horden's report using his same data sets and looking at nitrate dilution and arrived at the following results. The review of Dr. Horden's report was done in 1997. Their review has different values for the same variables. They have acreage, number of people per dwelling unit and number of gallons per day per capita in their review. There are four different scenarios. The best one that he has that closely matches what D. Banisch refers to in his memo would be 3.75 persons per dwelling unit at 75 gallons per capita per day. On ten acres using 50,000 gallons per day for recharge per square mile, he has found a minimum lot size of 20+ acres to maintain a nitrate dilution of 10 milligrams per liter. USGS records show that the Lockatong Creek goes dry. The foregoing standard is the Safe Water Drinking Standard. Looking at everything that has been published and what he is seeing now from his actual monitoring, it stands pretty much that what they have in the regulations does not reflect the local recharge and dilution. The capacity that is estimated to actually get into the aquifer is not getting there. The base flow is showing that all the indicators are there.

D. Banisch stated that model is required as a planning tool by the municipality in their wastewater management plan. The DEP had to come up with something on a state wide basis. DEP has been unwilling to draw a hard line or safe line. They have not defined a dependable yield for ground water recharge and stream flow. It suggests to him, it is too hot of an issue for them to really touch. DEP was going to come back to a municipality with a zoning standard on a carrying capacity basis. They were going to take how many units existed in the planning area of a municipality and say you have used up the development capacity in the HUC- 11 and you do not have any more capacity. They were going to grant approvals of wastewater management plans with the idea that they were going to tell municipalities how much development was left, which would somehow get translated into zoning. The fact that they use these as general planning tools on a state wide basis means they are useful and helpful but actual results are best. T. Kratzer agreed.

T. Kratzer will provide the information to D. Banisch. He stated the recharge does not happen as the state model indicates. If you look at the Hordon report and review the variables, they were very conservative. They are no way close to a drought condition, impervious condition or even the state regulatory requirements. They are using 75 gallons per capita per day, 2.74 persons per dwelling unit, and 200,000 gallons per day per square mile for recharge. Those numbers did not exist. They were just picked due to a lack of data at that time. They were based on some assumptions. Dr. Horden did Delaware Township's report before Kingwood's. He referred to the base flow of Lockatong Creek in Delaware Township but did not use it in Kingwood's. He never referred to that same data set. T. Kratzer is working with Rutgers, G. Ashley and her husband Gerry, looking at well data at where the depths might actually change where you run into aquifer or fractures for different sections of the Township, where the geology changes. T. Kratzer stated the maps originally done by T. Hauck are digital.

P. Lubitz stated he would like to offer a caution. He supports this and thinks the science is leading us in the direction of larger lots. He said that not only does the Township have to come up with an ordinance that is defensible but it has to come up with an ordinance that it can afford to defend. They are two different things. In his four years, he has learned that the Township is going to get sued no matter. With that in mind, the Township wants to create an ordinance on which it probably won't get sued.

T. Kratzer stated as part of the study they are doing throughout the four townships, they have a partner base of expertise from all levels of government. He is not working alone but rather as a member of the group. Everyone is realizing from the data set and what they are seeing that this is a real problem. It is a regulatory problem actually. It has to go back to what the NJDEP recommends or suggests for different types of

projects. The TR55 is a model that is used for estimating stormwater runoff. It was originally developed for crop farms to determine how much infiltration is on a crop field, not for runoff but for infiltration. The infiltration model was expanded to a runoff model. The model does not incorporate the plowpan or fragipans, only the depth to bedrock was considered. However, the reference section addresses site specific criteria on how to deal with it. The regulations do not include the site specific criteria. They do not require a person to go and do anything additional other than to use the model as it is. He is trying to amend the model applications to get things straightened out. The modeling has to be site specific not based on regional conditions.

D. Banisch stated the State is going to pull the plug on their wastewater management deadlines. They are not pursuing that as vigorously as previously. D. Banisch stated he will cite the other data, see what direction it points, where a recommendation may make sense based on the weight of the evidence, if it is strong enough to make a reasonable recommendation and if the results can be carried forward to a rezoning recommendation.

R. Dodds stated he would like to see any decision the Board makes supported by data. You can have all the data in the world on the Township's side but if you haven't convinced people that this is making good sense for all of Kingwood, the Township will be in a bad position.

P. Lubitz stated we will cite the Highlands. There is some real strength to the Highlands but the Township has to acknowledge the weaknesses of the Highlands. There is a strong feeling among landowners that they have had their properties confiscated without compensation.

D. Pierce stated the Highlands legislation included a provision for a fund to compensate landowners and they have never been compensated.

D. Banisch stated they have relied on a takings waiver and only one has been granted and another one is pending approval. The DEP moves with a degree of trepidation into that arena. When people have had their development rights taken away from them there is an application procedure in place to pursue an approval on the basis that the land itself and resulting regulations are essentially a takings. For the DEP to avoid those takings, they grant the waivers under the guidance of the Deputy Attorney general who oversee that whole function.

D. Pierce stated the problem with a takings claim is the courts have always said you have to exhaust your administrative remedies. You have to make application for a variance or waiver. You take a lot of rights away from people. You make them jump through enumerable hoops and when they are near the finish line and cannot do anything with it, DEP comes back and says you still have a right to a waiver so we will allow you to do this little tiny bit so we don't have to pay you for the rights.

R. Dodds stated that what people do on their own land so long as it doesn't affect their neighbors is acceptable. The Township tends to leave people alone in Kingwood. He would not like to see the Township change dramatically. He has always questioned small lots with the well and septic right on them and the minimal distance between them. If you were not polluting your own well, there is a good chance you are polluting your neighbor's well. If you are polluting your own well it is a County Health Department issue but when you begin to pollute your neighbor's well, that is an issue. When we have had developers come and had asked the hydrogeologist, at the time, where was the septic going to go, they referenced to the

models. The Township has to find the fine line making sure the neighbors are protected but at the same time people have the ability to develop the property or have some other method of compensation.

J. Strasser stated there are some homes in Kingwood that are a couple hundred years old and plus and have septic systems and wells. The Township has historic data where the Township has had problems or not. He has to believe that all throughout Hunterdon County that is how that whole thing was developed. It was all developed by the different geology in the towns, this works here and this works there. He hasn't heard a big problem. He has an experimental system for his home. He has never had a problem with it.

P. Lubitz stated the Board of Health has seen applications for replacement systems. S. McNicol has the data of septic failures. The reason the Township is not seeing a lot of applications at this time is because there are not a lot of house sales. The issue comes up when the house is sold.

T. Kratzer stated the Board of Health is trying to suppress septic expansions on houses in areas of poor soils. Some of the applicants are trying to put in a system that has received approval by the NJDEP, which is called a "peat" system. The Township is trying to get more data on the "peat" systems. The testing on the "peat" system was originally done in a lab test and somewhere else in New Jersey. Installers have stated that they did not know of any testing sites in this area. The Township is still not sure of the effect in this area. There is currently one unit that has been in place for two years in Kingwood. A developer can design a lot that can facilitate more recharge. It can be designed to facilitate less runoff but you have to go back to the regulations and allow that to happen. The regulations need to provide the narrative in them.

D. Banisch stated there are a variety of systems that can be used elsewhere that are not authorized in DEP regulations for use in New Jersey. T. Kratzer stated he was referring to the types that are permitted in the BMP manual.

P. Lubitz commended D. Banisch on all the work and research he has done.

R. Dodds thanked T. Kratzer for being here this evening and providing his insight to the Board on this matter.

D. Banisch will put it in a summary presentation for the Board to review next month.

T. Kratzer, referencing Pine Hill Road, stated the data found a ton of sediment in the first ten minutes of runoff. They have to replenish a 700' section of Pine Hill Road with about 120 tons of gravel and dirt per year. Monitoring is continuing at Kingwood Park on the far side by the athletic fields for its drainage. The monitoring on the Union Road side incorporates some of that parking area, goes up behind the house and gets the runoff from the agricultural fields and also the wooded buffer areas. What they are seeing to compare those two is that they can actually eliminate the part that is open space from that area using a weighing system to determine what is coming from the agricultural areas. More sediments and nutrients are originating from the agricultural areas. The information will be compared to the TMDL publication that the NJDEP has developed for this watershed and will compare the results to what we are actually measuring. This is the first time this type of study has been done in the State.

D. Banisch stated after he reviewed his memo, there were some typos and very awkwardly phrased statements that needed to be cleaned up. He has already started working on those items and have the

numbers reconfigured so they run sequentially through the discussion. There will need to be more on an equity discussion which D. Pierce recommended which needs to be explored by more than just a paragraph. The recommendations will be clearly stated by identifying the reasons once we put together the summary of T. Kratzer's research and findings.

J. Strasser inquired if it will be global for Kingwood. D. Banisch stated he has not yet been determined. J. Strasser stated there are different stratas so the Township needs to be very careful.

R. Dodds stated the description of the AR-3 needs to be reworked based on T. Kratzer's information and may change dramatically.

E. Niemann stated the general idea was to segment a part that needed the stricter limitations.

P. Lubitz stated the restrictions could be applied to an area that is essentially already preserved and you would not have the problem of taking someone's land because the people have already been compensated for the land. You could start with an existing zone. The Township would be creating a pre-existing zone where restrictions already exist.

T. Kratzer suggested adding an item to the ordinance for the stormwater controls is to look at the soil layers not just depth to bedrock. It would be used to calculate actual runoff volumes and peaks. D. Banisch stated he does not think the Township can preempt those regulations.

J. Strasser reviewed a project he is currently working on and stated he has paved quite a bit of the site. He was required to construct a detention pond. D. Pierce stated the difference is that the project J. Strasser is working on is probably in a more urban area where they are on sewer. D. Pierce stated T. Kratzer is looking at recharge. D. Pierce stated what J. Strasser is dealing with on the stormwater runoff is the loading to the system for drainage. T. Kratzer stated he is balancing both. With the stormwater runoff you may not have anything staying on site so you will not have recharge. D. Pierce stated T. Kratzer is more concerned with the effect on recharge versus what is the effect to the receiving body that you are not discharging at a greater rate post-development rather than pre-development. T. Kratzer stated they are both very important.

D. Banisch stated recommendations in the Land Use Plan are not always immediately followed by implementing ordinances. If the Board gets to a point in August where the Board cannot find agreement for specific recommendations based on the data that comes forward, the Board can still move forward to a public hearing to get that out of the way and come back to it in a subsequent evaluation and revisit the issue later. The Township would still be building a case for conservative land use policies in your Land Use Plan along the way.

J. Strasser requested D. Banisch explain what he meant by conservative. D. Banisch responded when he uses that word it is making assumptions, like for example, instead of the 30 year rainfall as the input in the model, using just the drought of record, which we know is going to drive the minimum lot size recommendation higher. That is conservative because it is anticipating planning for the worst. J. Strasser stated the only reason we are doing this is to protect the wells and septic in the Township. He wants it to be defensible in court. D. Banisch stated policy is defensible in court as well as science. R. Dodds stated as long as policy does not discriminate and is evenly applied. J. Strasser stated increasing the lot size erodes his equity in his

property. D. Banisch stated science is an important component for that reason. Ideally, having a menu of different types of rationale that support the land use plan objectives is probably the strongest defense.

D. Banisch reminded the Board of the last rezoning where the governing body's decision to protect the minor subdivision provision that allowed larger lots on existing roads in existence as of 1993 to be entitled to smaller minimum lot size subdivision opportunities.

D. Banisch left the meeting at 9:15 PM.

### **Proposed Ordinance – SEIA**

D. Pierce stated the last issue is to what situations this requirement should apply. Should it apply to all development applications before the Planning Board and Board of Adjustment and/or all proposed developments over a certain size, even on existing lots that do not have to come before any boards, to changes to an existing business subject to site plan or amended site plan approval, to only new commercial or industrial developments? It will be administered by the zoning and code enforcement officers. The Board's decision will determine how certain sections of the ordinance will be written.

After a lengthy discussion, the Board decided that the ordinance would be triggered with .25 of an acre of disturbance. D. Pierce will make the revisions for the August meeting.

### **Minutes**

It was moved by P. Lubitz, seconded by S. McNicol and carried to approve the minutes of June 14, 2012. All members present voted **AYE** on **ROLL CALL VOTE**, except T. Kratzer who **ABSTAINED**.

### **APPLICATION STATUS**

R. Dodds reviewed:

Cacciabauda – Block 37, Lots 3.05 – 3.08 – Release of Deeds;  
Rabosky – Block 8, Lot 25.01 and 25.15 – Release of Deeds;

### **CORRESPONDENCE**

### **PRIVILEGE OF THE FLOOR**

### **ADJOURNMENT**

It was moved by P. Lubitz, seconded by J. Strasser and carried to adjourn the meeting at 9:39 PM. All members present voted **AYE**.

**Respectfully submitted,**

**Diane Laudenschach, Secretary**