

October 15, 2020

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Dear Chairman Randazzo and OPSB members,

First, I would like to thank ALJ Jay Agranoff for his inquiry into the Karst Region during Dr Ira Sasowsky's testimony and cross examination. I hope the OPSB will take the time to read the reports on the "Ground Water Induced Flooding in the Bellevue Ohio Area in the Spring and Summer of 2008" and discuss the findings and recommendations of this report with the ODNR's Division of Geological Survey.

In these studies, Geo Survey concluded that the Bellevue/Castalia Karst Region has:

- The largest sinkholes in the state by perimeter, volume, area, and axis..
- More than 1,000 verified sinkholes
- Highly developed "sinks" because of the ancient lakes and underlain gypsum evaporates
- Increased bedrock fracturing from multiple glacial events
- Higher dissolution activity and merging of sinks that create larger sinks than other areas
- Less than 20 feet of glacial drift or ntn at all which..."**makes this area prime for karst development.**"

Groton Township has the largest, continuous sinkhole in the state- measuring more than ½ mile in length! Sinkholes are found throughout Groton, Oxford, and portions of Lyme Township in both the Columbus and Delaware Limestone.

Those of us who live in the karst region are very concerned about what will happen to the ground beneath our feet, as well as the highly likely disruption and contamination of the only water supply that we have!

Mr Jon Secrest, the Applicant's attorney, in his cross-examination of Dr Ira Sasowsky, included these 3 questions

1. **Has there been any collapse of buildings due to karst collapse in the project area..**

Yes, there has been. In the well documented Bellevue flood of 2008, the basement of a residence collapsed from the upward "geyser" pressure of the underlying groundwater. Another resident had to pump (using up to 7 different pumps, running simultaneously, 24 hours a day) for more than a month, to keep the water in their basement from getting out of control and causing major structural damage to their basement walls. There were other residences in

the area that had damage in their basements as well from the water table being forced upward through the sinkholes.

2. The operating Quarry on Portland Rd, Groton Township:

The quarry has to pump groundwater out of its facility, almost continuously (except in very dry conditions), because of the aquifers and natural springs that dump into the quarry. You can see the water as it discharges into Pipe Creek, located at the southeast corner of the quarry (at the NW intersection of Strecker Rd and Rt 4.

In general, the groundwater, waters from the aquifers, caves, and springs run North to Lake Erie and Sandusky Bay. Never has a survey been done to determine if and what effects the quarry operations have had on wells around the quarry or North of it.

The Bellevue Hospital was built within known Karst bedrock, and several private wells around that property were damaged because of the excavation done in that area. The Bellevue Hospital settled this matter out of court with the landowners of these wells, but their wells were never able to be used again.

3. Water contamination in the area

After the 2008 Bellevue flood, many people's wells were contaminated. It was discovered that for many, even though their basements did not receive any flooding, their wells were contaminated.

Also in Apex's application to the OPSB, they state:

- "Construction [of turbines]...could result in certain localized impacts to groundwater. Installation of turbine foundations has the greatest potential for such impacts..."
- "Excavation within bedrock may be necessary to install foundations ...the need for blasting, rock breaking/hammering, and/or pile driving may arise during construction..."
- "When required, blasting can generate seismic vibrations, fracture bedrock, and potentially impact localized groundwater levels"

It is impossible for us to ignore the risks of erecting 655 ft Industrial Wind Turbines into our vulnerable, unpredictable, destructive karst region. Please take into consideration the professional thoughts and opinions from geologists around the country:

-San Francisco State University Dept of Geology

"The impact of human activity on karst terrains is amplified and characterized by extreme rates of change on an exaggerated scale...their very nature is what makes them fragile and

susceptible to pollution...Because of the rapid velocities of these underground streams, contaminants may travel several miles ... in only a few hours..."

- Barr Engineering Co/Oklahoma Geological Survey

- "Sinkhole collapse, drainage problems, and groundwater contamination are engineering and environmental concerns associated with development on karst terrains."

- Geological Survey Engineers

- "Karst can lead to a wind turbine tilting and even toppling... subtle differential settlement of even 3 centimeters across a 15-meter-wide wind turbine foundation can cause the turbine to be out of tolerance and lead to expensive and time-consuming remedial action."

-ODNR Geological Survey

"Karst...is a geological hazard that Ohioans must live with. As with any geological hazard, however, the risks to property and health from living on karst can be greatly reduced by *using common sense and maintaining a sense of respect for both the power and vulnerability of the environment.*"

Erecting turbines in the most developed karst region in the state makes no sense!

On behalf of all the citizens who live within the Bellevue-Castalia Karst Region, and have experienced first hand it's unpredictability and it's destruction, I ask that you deny the Emerson Creek Wind Project.

Thank you for your consideration,
Krista Beck
Groton Township/Erie County

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise." Aldo Leopold

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