

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

LAMONT-DOHERTY EARTH OBSERVATORY
P.O. Box 1000 61 Route 9W Palisades, NY 10964-8000 USA

31 May 2020

Re: **850 Rt. 28 LLC site development considerations**

To whom it may concern:

There are substantial conflicts between the various studies of the 850 Rt. 28 LLC development project in the Town of Kingston. Resolution of these conflicts is needed before the project can be properly evaluated by the various planning boards and State agencies to which the proposal has been submitted. I hope to contribute to the resolution. I am a life-long resident of the Hudson Valley with sufficient technical expertise to give an informed opinion on the merits of the studies. I am a retired Professor of Earth and Environmental Sciences at Columbia University, based at Columbia's Lamont-Doherty Earth Observatory. My expertise to weigh in on the application includes my PhD in Geology from Harvard and my 38 years teaching the field geology of the Hudson Valley through a course in mapping at Columbia. This course covered field methods, stratigraphy, structure, hydrology, glacial geology, and working out the history of the area for undergraduate and graduate students. My research has been recognized by my peers through election to the National Academy of Sciences in 1999.

At issue are the archaeological and hydrological reports on the characteristics of the proposed site. Is there enough flow and groundwater recharge to support the water needs of the industrial operations proposed without causing collateral ecological damage to the surroundings? Is there so little of archaeological interest about the site that a designation of "no archaeological and/or historic resources" is appropriate? The studies presented in support of the development argue that the answer to these questions is 'yes', there is enough water and too few items of cultural/archaeological interest to matter. The studies presented by HydroQuest bring those 'yes' answers, into serious doubt in the case of the hydrology, and completely overturn the archaeological survey through the use of far superior investigatory methods. The competing visions cannot both be correct. I believe this to be an easy scientific choice in favor of the HydroQuest version of circumstances. Here are the reasons why this choice is easy.

The archaeological review of Dr. Joseph Diamond concludes that he failed to find any evidence for 19th century quarries. On this basis, the project received an OPHRP **No Impact** determination: a green light. Please note that Dr. Diamond's failure to find them is not the same thing as demonstrating that there are no archaeological and/or historic resources on this site. This will be abundantly clear from a cursory examination of the HydroQuest reports. The eastern building proposed for the site would be on the southern end of the 19th century Hemlock quarry. The stunning contrast between Dr. Diamond and HydroQuest may in part be due to the fact that Dr. Diamond chose mid-September for his field check, used low resolution maps of more historic than topographic interest, and did database checks as if failure to find entries therein indicated the absence of sites of

relevance. A comparison with HydroQuest methodology is instructive: doing field examination of the site when the foliage cover was off, using 2-foot LiDAR-derived topography, using high resolution orthoimagery, and mapping the features by direct field observation instead of just browsing databases. The choice in favor of HydroQuest's determination is easy. The site is full of significant 19th century cultural resources. The **No Impact** finding should be reversed.

The glaciological part of the HydroQuest study breaks new ground in Hudson Valley glacial geology, documenting the existence of older, perched, western, ice-marginal lakes above the later level of Lake Albany. The drainage channels from this lake and the rich presentation of quarry works of the 19th century make this area in and around the Bluestone Wild Forest eminently worth preserving and documenting further. This can best be accomplished if the site is not further degraded by this project.

Site hydrology measurements by MHI are not contested. But the duration of pumping tests was only 1/3 of standard DOH practice and the test had no observation wells for ground-truth of the models of expected drawdown cones of depression. The pumping tests at the single well BW-1 may or may not have applicability to an accurate rendition of subsurface hydrology, depending on whether the assumptions of isotropic transmission and connectivity are valid or not. Assuming that they are valid, the proposed pumping fluxes modeled by MHI will still potentially draw water from Pickerel Pond from beneath. Because about 8% of Pickerel Pond's watershed will be diverted elsewhere by site excavation and grading, because it may be drained from beneath by site pumping, and because the water use estimates are possibly low by comparison with applicant's water use records from the 6 Kieffer Lane facility, it is far from clear that there is a firm case for adequate water supply without deleterious consequences for the adjoining wetlands/ponds. A full SEQRA review of the impact on the surroundings is necessary before this project can be fully evaluated for approval or termination. Such a review should include pumping tests of the required duration with observation wells for confirmatory purposes. Given that this site borders on state park lands, full SEQRA review would seem to be required anyway, and it is not clear why this appears to be being evaded. Thus the positive review of the hydrology of this site is highly questionable.

This project is not ready for prime time or a green light.

Best regards,

A handwritten signature in cursive script, appearing to read "David Walker".

David Walker
Higgins Professor Emeritus
Earth and Environmental Sciences
845-365-8658, cell 845-596-5347
dwalker@ldeo.columbia.edu
209 Paul Saxe Rd.
Catskill NY 12414