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FW: Whispering Oaks Wetland Concerns

VW

Voelker, William
Tue 7/6/2021 1:28 PM
To: Lisa Selmquist

Whispering Oaks Propos...
7 MB

Please post. Thank you.

From: Matthew Wage <mattw328@gmail.com>
Sent: Tuesday, July 6, 2021 11:46 AM
To: Voelker, William <wvoelker@cheshirect.org>
Subject: Whispering Oaks Wetland Concerns

Bill,

Attached are my concerns on how the Whispering Oaks proposal will adversely impact the vernal pools, and associated environment. Could you please distribute this to the commission members, Lovley Development. and IWWC members who voted to approve the wetland permit for this property. I do not need this read into the public meeting on 7/12/21, but would like my letter associated with the public record and posted prior to the meeting.

Thank you in advance.

Matt Wage
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Reply | Forward

July 2, 2021

Planning and Zoning Commission
Town of Cheshire
84 South Main Street
Cheshire, CT 06410

Dear Commission Members:

This letter addresses the vernal pools as indicated on the ***Site Common Land Plan*** (Sheet S-2 dated 5/18/21 and revised 07/01/21.) I attended the 6/14/21 public hearing and was surprised to learn that the vernal pool that supports the peepers I hear every spring are part of the wetlands included in the Whispering Oaks proposal. I was surprised since I was using, up to that meeting, the same prints as supplied to and referenced by the Cheshire Inlands Wetlands and Watercourses Commission (11 sheets, Dated March 24, 2021; revised 5/14/2021) in their approval dated 5/18/21. I contacted Mr. Ronald Walters, Senior Environmental Analyst, with the Regional Water Authority who also supplied comments on 5/18/21 based on those same set of prints. He stated he was unaware vernal pools on the property. I have copied him on this letter and am looking forward to his input. I am also requesting that the IWWC update or amend their approval regarding the vernal pools. Per the DEEP website on vernal pools *"...under Connecticut law, vernal pools, which contain a specific ecology, are one type of vernal watercourse, and Connecticut's municipal inland wetlands agencies regulate any activities that are likely to impact or affect vernal waterbodies."* It is important that the IWWC in its approval state that they looked specifically at this type of wetland, if not that approval should be amended or rescinded.

I have some expertise in this area. I am a Connecticut Master Gardner (2008), have a Certificate of Landscape Design from the New York Botanical Garden, taken classes specific to wetland preservation and remediation, worked with conservation groups, and have residential and commercial construction experience. I strongly believe that the proposal as it stands would have a severe adverse impact on the vernal pools and the associated wildlife and ecological system they provide. I base my opinion on personal experience, research utilizing information from land grant colleges, such as the Universities of Pennsylvania and Connecticut. Within this document I cite Calhoun and Klemens[1] (2002) paper on vernal pool best practices. This paper and/or its authors has been used in Connecticut by the towns of Farmington, Colebrook, Winchester, Mansfield, among others. Dr. Klemens resides in Connecticut and recently (1/17/2021) provided a report to Farmington TPZC concerning a development at 402 Farmington Road, and Quarry Road. I am surprised that no assessment of the wetlands has been done or provided.

My concerns are as follows:

According to the ***Stormwater Management Report*** (3/24/2021) the area that drains to the wetlands (area watershed 2) will see a reduction of approximately 25%, in addition, roof drainage from most residences will be directed to infiltration galleries. This reduction of water directed to the wetlands and a reduction of upper soil saturation due to infiltration galleries will most likely reduce the hydroperiod of the vernal pools to a point that they may not support the

current amphibians. Currently these pools support peepers, wood frogs, and grey tree frogs at a minimum and are present during the spring for approximately 2 months.

Factors associated with stormwater management systems and how they effect this ecosystem according to Calhoun and Klemens (2002) are as follows:

- Systems of curbs, catch basins, and hydrodynamic separators—designed to capture and treat road runoff—intercept, trap, and kill amphibians and other small animals crossing roads. These systems can also de-water vernal pools by releasing water into another watershed, or downslope of a vernal pool. Hydrodynamic separators are especially problematic because they remove particulate matter from stormwater via swirl chambers. These devices cannot distinguish between sediments and small vertebrates; thus, thousands of amphibians can be killed in one unit.
- Systems of gutters, leaders, and infiltration systems designed to capture and manage roof runoff can drain wetlands if the roof water is captured and released in another watershed, or below the vernal pool area.
- Systems designed to capture road and roof runoff can alter how long pools hold water by transporting additional water into the vernal pool watershed. This is especially critical in short hydroperiod pools that support fairy shrimp.
- Vernal pools and other small wetlands have been inappropriately used as stormwater detention pools and biofiltration basins. These practices create a degraded aquatic environment subject to sediment loading, pollutants, and rapid changes in water quantity, quality, and temperature.
- Stormwater detention basins and biofiltration ponds can serve as decoy wetlands, intercepting breeding amphibians moving toward vernal pools. If amphibians deposit their eggs in these artificial wetlands, they rarely survive due to the sediment and pollutant loads, as well as fluctuations in water quality, quantity, and temperature.

Calhoun and Klemens (2002) make the following management recommendations

- Vernal pool depressions should never be used, either temporarily or permanently, for stormwater detention or biofiltration.
- Detention and biofiltration ponds should be located at least 750 feet from a vernal pool; they should never be sited between vernal pools or in areas that are primary amphibian overland migration routes, if known.
- Treat stormwater runoff using grassy swales with less than 1:4 sloping edges. If curbing is required, use Cape Cod curbing. Maximize open drainage treatment of stormwater.
- Use hydrodynamic separators only in conjunction with Cape Cod curbing or swales to avoid funneling amphibians into treatment chambers, where they are killed.
- Maintain inputs to the vernal pool watershed at pre-construction levels. Avoid causing increases or decreases in water levels.

In short, the Whispering Oaks proposal does not address the concerns above, nor does their proposal follow the recommended stormwater management. The stormwater collection basin is less than 100' from the wetland boundary, curbing, road drainage, infiltration galleries etc. as

proposed prior or after the 7/1/21 revision will have a very determinantal effect on this ecosystem.

Another contributing factor detrimental to the wetlands is the installation of sewer and water lines transecting the vernal pools.

In reviewing the ***Wetland Crossing Detail Plan*** (Sheet G-2 dated 5/14/2021) it can be determined that the vernal pools as denoted on the ***Site Common Land Plan*** (Sheet S-2, dated 5/18/2021) flow East to West with the Eastern pool having a bottom elevation of 302.5' and the Western pool a bottom elevation of 302'. The upper limit of the pools seems to be around 303.7 giving these pools at capacity a maximum depth of ~18". The lowest elevation at the wetland crossing, which is also the location for the sewer and water lines is 303'. So, at maximum pool depth this area would be under water and is notated to "*Chain the walkway to adjacent trees to avoid drifting during high waterflows.*"

In review of the ***Site Details*** (sheet D-1, dated 3/24/2021) the minimum width for a 15" HDPE sewer pipe is 34", this pipe would be on a gravel bed and surrounded by a porous fill, above this pipe would be an 8" water supply pipe also surrounded by a porous fill on a gravel bed. There are also 2 sewer vents indicated on the *Sanitary Sewer Main* (Sheet P3, dated 3/24/2021,) these vents are sited close to 305.' The 303.7' mentioned above for the upper limit of the vernal pool was a resting state with no drainage – in review of elevations it may be possible for these pools in storm conditions to exceed 306', possibly higher – a good foot over the top of the sewer vents. The drainage elevation for these pools is not indicated on any print. The installation of the water, and sewer drains would act like a French drainage system allowing water to leave the wetlands through the materials surrounding the pipe. The high-water point for the pools may be reduced by the two vents below the high-water mark. High-water here will flow directly into the sewer system.

The stormwater system, site plan, and sewer installation together in my estimation poses a dire threat to the wetlands and vernal pools on an ongoing basis. The final factor is the actual construction and tree removal as indicated on the ***Wetland Crossing Detail*** (Sheet G-2 dated 5/14/2021). Here again I'll refer to Calhoun and Klemens (2002) and conservation issues associated with construction activities around vernal pools. These are:

Conservation Issues:

- Site clearing may result in crushing large numbers of amphibians and other animals.
- Site clearing and subsequent construction activities reduce terrestrial habitat available to amphibians by decreasing the extent of the habitat, compacting soil, removing downed woody debris, diminishing invertebrate food supplies, and decreasing the number of small mammal burrows used for refuge by salamanders.
- Site clearing removes shade trees, which alters local climate, resulting in elevated vernal pool water temperatures and increased drying of the forest floor. Amphibians are sensitive to alterations in temperature and are highly subject to desiccation. Elevated

temperatures in vernal pools can increase algal productivity, thereby reducing oxygen available to developing amphibian larvae and increasing the likelihood of larval die-offs.

- Site clearing and grading increase erosion rates, which may result in sedimentation of vernal pools. Increased sediment loads stress and kill both amphibian eggs and developing larvae and can alter the structure and composition of in-pool vegetation
- Site clearing and grading create barriers to amphibian dispersal by stockpiling mounds of soil, altering topographic contours, and creating open areas which amphibians may be reluctant to cross because of increased vulnerability to predation and desiccation.
- Use of silt fencing to control erosion creates major obstacles to movement of amphibians and other small animals. Removal of silt fencing is rarely addressed, or often overlooked in sedimentation and erosion control plans. The prevailing belief is that more fencing, for longer periods, provides better environmental protection. Therefore, fences are often left in place indefinitely, impeding the migratory patterns of tens of thousands of animals. Erosion control structures should be removed within 30 days of final site stabilization. Erosion control berms—a sediment control measure accepted in some states—are effective sediment barriers when properly installed and provide less of an obstacle for amphibians and reptiles. Installation of sediment control barriers to control erosion and sedimentation should be limited to the down-gradient edge of any disturbed area and adjacent to any drainage channels within the disturbed area.
- Site clearing and grading can de-water vernal pools by altering surface-water drainage patterns associated with the pool.
- Site clearing can create water-filled ruts. These ruts intercept amphibians moving toward the vernal pool and may induce egg deposition. Often the ruts do not hold water long enough to allow development of the amphibians and therefore act as "sinks" that result in population declines.

The ***Wetland Crossing Detail*** (Sheet G-2 dated 5/14/2021) notes are counter to best practices in dealing with vernal ponds. There is no inventory of what native plants are present – nor any indication of what type of vernal ponds are on the property. Black leaf pools have little or no vegetation, while others have a variety. To simply dig a trench, separate the soils, replace and add a wetland mix is not a viable approach to managing or construction around a vernal pool. The "Nature Trail" should not even go over such a valuable wetland resource.

In summary there are several factors that would severely damage or destroy the vitality of the current vernal pools present on the property. Vernal pools are a valuable resource that is disappearing at an alarming rate. They are Federally, and State recognized as needing protection and activities around them should utilize the utmost care in assuring their preservation.

The proper approach would be a detailed environmental assessment of the area. This is important in that there are species listed by Connecticut that are endangered, threatened, or of special concern that utilize these pools and surrounding habitat. A vernal pool is not simply just the area where the water is but is comprised of specific zones important to the animals that depend upon these pools. They cannot be simply replaced, and once changed are very difficult to recreate. In closing I leave you with a table from Calhoun and Klemens (2002).

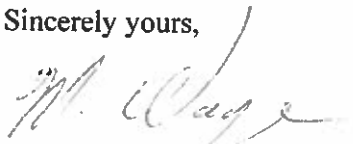
Table 3. Recommended guidelines for vernal pools and surrounding management areas in developing landscapes

Management Area (distance from pool edge)	Area of Managed Zone (acres)[1]	Primary Wildlife Habitat Values	Desired Management	Recommended Guidelines
Vernal Pool Depression (0 ft)	0.2	Breeding pool; egg attachment sites.	Good water quality and water-holding capacity; undisturbed basin with native vegetation along the margin.	No disturbance.
Vernal Pool Envelope (100 ft)	1.4	Shade and organic inputs to pool; upland staging habitat for juvenile amphibians.	Maintain forested envelope around pool; avoid barriers to amphibian movement; prevent alteration of water quality or pool hydrology.	No development and implementation of Management Recommendations for this zone.
Critical Terrestrial Habitat (750 ft)	40	Upland habitat for pool-breeding adult amphibians (for foraging, dispersing, and hibernation).	Partially shaded forest floor with deep, moist, uncompacted litter and abundant coarse woody debris.	Less than 25% developed area; implementation of Management Recommendations for this zone.

[1] Approximate area, based on a 100-ft. diameter pool.

Thank you for your attention to this matter.

Sincerely yours,



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CC: Mr. Ronald Walters
Senior Environmental Analyst
Regional Water Authority

Citation reference

[1]Calhoun, A. J. K. and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.