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WETLAND BOUNDARIES • POND & LAKE MANAGEMENT • CONSTRUCTION FEASIBILITY CONSULTATIONS • ENVIRONMENTAL STUDIES

Date: May 21, 2014

To: Connecticut Siting Council

From: Steven Danzer PhD
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Docket 445:
Homeland Towers, LLC and New Cingular Wireless (AT&T)
Ridgefield, Connecticut
Response to Intervenor Interrogatories, Set One

1. *The Recovery Plan lists three zones of management concern for the Bog Turtle. Please identify the management zone in which the proposed tower site lies.*

Known core habitat (Zone 1) for the Bog Turtle exists along the Titicus River, 1300-1500 ft from the project site as depicted by maps within the Ridgefield Natural Resources Inventory (NRI). Based upon field visits, there are two areas within the polygons within the NRI, in proximity to the site, that appear to be promising as habitat; the area near the SW corner of Ledges Rd and Sherwood Road, and the area near the SE corner of Ledges Rd and Aspen Mill Rd. The Sherwood/Ledges area appears to be the more promising of these two areas, due to the heterogeneity of structural habitat present. Based upon this knowledge alone without examination and consideration of the wetland habitat on-site or directly adjacent to the site, the proposed footprint for the compound would be within Zone 3.

However, after examining and considering the wetland habitat on and directly adjacent to the site, a strong argument exists for designating the tower site as Zone 2. The wetland corridor directly beneath the site is a semi-open stream corridor which discharges directly into the Titicus. The headwaters to the stream corridor, located on-site, appears to be sustained by groundwater seepage, and, judging from the understory vegetation, this headwaters area has shallow surface water and saturated soils over a good portion of the year, as does large portions of the downstream corridor off-site. Skunk cabbage and scattered Tussock sedge are found intermittently along the less steep sections of the downstream corridor which alternates between wider, open sections and steeper entrenched sections. The hydrological connectivity to the

Titicus, the general seepiness, and the plant cover are factors that are inviting to reptiles such as the Bog Turtle. Furthermore, bog turtles have been known to inhabit higher elevation headwaters (Klemens 1993, Amphibians and Reptiles of Connecticut, p 178), and have the ability to cross roads (Recovery Plan, p 16). Based upon this knowledge of the habitat and geography, it is conceivable and even reasonably probable that the headwaters wetland located on site and/or portions of the stream corridor below constitute potential Bog Turtle habitat as well. If so, then the proposed footprint for the compound would be within Zone 2.

2. *Reviewing the criteria for minimizing impact to bog turtles and their habitat within the appropriate management zone, please describe in detail how the proposed activities comply or do not comply with each criteria or recommendation of the appropriate zone within the Recovery Plan.*

Zone 3: As per the Recovery Plan (p. A-3), this zone is important not only because activities in this zone can affect wetlands and/or streams connected to or contiguous with Zone 1, but because these areas may support undocumented occurrences of bog turtles and/or provide travel corridors. Because of the potential of this zone to alter hydrology of bog turtle habitat, this area is important to protect the ground and surface water recharge zone.

- The proposed development fails to protect the recharge zone to the wetland drainage corridor (please see Question/Answer #11 and the accompanying environmental report dated 5/21/14), and as such it is expected that the drainage corridor, currently maintained by groundwater seepage, will become more flashy and erosive. This is a concern since this stream corridor directly discharges into the Titicus in proximity of the Aspen Mill Road and the Sherwood Road habitat areas referenced in previous Question/Answer #1.

- Activities in this zone should be carefully assessed in consultation with US Fish and Wildlife Service, pursuant to language in p. A-3 of the Recovery Plan. The application materials fail to provide evidence of such a consultation.

- Since the on-site headwater wetlands and lower off-site drainage corridor discharges into the Titicus, the applicant should also consult with the Army Corp to see what permits, if any, are needed, pursuant to Task 1.2 (pp. 45, 50) of the Recovery Plan.

- Prior to conducting activities that may directly or indirectly wetlands, bog turtles and/or habitat surveys should be conducted in accordance to specific survey guidelines. Such guidelines are articulated in Appendix B of the recovery plan. No such detailed survey is proposed within the application materials.

Zone 2: Furthermore, if one accepts the reasonable probability that the on-site headwaters wetland, and/or the drainage corridor below is in Zone 1 rather than Zone 2 or 3 (please see discussion under Question/Answer #1 regarding this potentiality) and as a consequence, the site for the proposed compound would be in Zone 2. As per the Recovery Plan p. A-2, activities in

Zone 2 can indirectly adversely impact wetland habitat, and/or cut off travel corridors between wetlands occupied or likely to be occupied by bog turtles.

- Evaluation of proposed activities within this zone require an assessment of anticipated impacts on wetland hydrology. The application fails to provide a detailed analysis of such impacts within the application materials, necessitating a review by the consultant on behalf of the Intervenor, who concluded that a hydrological impact is expected, and that this impact is avoidable and/or mitigatable (see Question /Answer #11.) Because the bog turtle is endangered and so close to extinction due to the loss of suitable habitat, the degradation of the habitat at this location would constitute an unreasonable impact to this natural resource.

- The above comments for Zone 3 are also valid for Zone 2 as well.

3. *Is the Intervenor familiar with the content of the Ridgefield Natural Resources Inventory (NRI)? For the record, please attribute authorship of that NRI.*

Yes, the consultant on behalf of the Intervenor is aware of the fact that the Ridgefield Natural Resources Inventory is publically available online. However, the consultant was not aware of this document during the preparation and submission of the previous comments dated 4/16/14.

The document was prepared for the Ridgefield Conservation Commission by Michael W. Klemens PhD, Eric R. Davison, BSc, and Benjamin K. Oko, MD.

4. *Please examine the account on Page 43 of the NRI and opine on what is, in your best professional judgment, the likelihood that bog turtles are still extant in the Titicus River/Mopus Brook wetlands.*

The NRI states “it is assumed by most turtle biologists that populations in both these counties are at or near localized extinction”. Yet four habitat polygons located within the Titicus River/Mopus Brook drainage area are still depicted within that document for consideration. One of those polygons encompasses the site.

Furthermore, as noted above (Question /Answer #1) there are two locations along the Titicus within 1300-1500 ft of the site that appear to support core habitat for the bog turtle; the SW corner of Ledges Rd and Sherwood Road, and the area near the SE corner of Ledges Rd and Aspen Mill Rd; of which the Sherwood/Ledges area appears to be the more promising of these two areas due to the heterogeneity of structural habitat. The wetland drainage corridor on-site

and downstream off-site (discussed in Question /Answer #1) connects to the Titicus and may also provide habitat as well.

Based upon these considerations, it would be my position that it is conceivable and reasonable that Bog Turtles are still extant within the Titicus River / Mopus Brook drainage area. They are no less likely to be found there than in any other place within the Hudson/Housatonic region with equally suitable habitat.

5. *In testimony received by the Siting Council on April 17, 2014, the Intervenor's wildlife expert, Steven Danzer, PhD, refers to an extant population of bog turtles occurring within the Hudson/Housatonic Recovery Unit. Please clarify for the record the geographical extent of that Recovery Unit. Would it not be reasonable to expect that there would be extant populations within that Recovery Unit?*

Figure 6 of the Recovery Plan depicts the limits of the Hudson/Housatonic Recovery Unit. The geographic extent of this unit within Connecticut includes the western uplands of the state (i.e. the northwest highlands, the central western hills, and the coastal plan, from the NY border extending easterly until the geological beginnings of the Connecticut Valley region.

This is a broad area, and one would reasonably expect that if habitat was suitable, then it would be reasonable that there would be turtles.

6. *Slimy salamander habitat is described by Dr. Danzer (Page 6 of 7 in his testimony) as: "steep, moist, rocky slopes in mature second growth deciduous or hemlock forests, rotting logs, and a thick duff layer." As the site is readily accessible as Town owned open space, has Dr. Danzer examined the area that surrounds the tower site? If so, does he find the habitat present consistent with his description?*
7. *Could the proposed site be characterized as mature moist second growth forest?*
8. *Is the duff layer thick?*
9. *On page 2 of his testimony, Dr. Danzer refers to the site having a southwestern exposure. Please reconcile the exposure of the site with the preferred habitat for slimy salamanders described earlier (Page 6 of 7).*
10. *Are there any known locations for slimy salamanders in Connecticut located on southwest facing slopes?*

Answers 6-10:
In my previous comments I noted that this salamander is found within the region, *if habitat is suitable*, and that there have been several projects in nearby Danbury, regulated by Wetland Commission, of which this was an issue of concern during the review process.

Subsequent to those comments, I have had opportunity to investigate the off-site habitat adjacent to the site, and do note the drier solar exposure of the landscape, and the absence of dominant Hemlock tree cover. The forest is second growth deciduous, as is most of the forest in the state. Leaf litter is present. But ultimately, once you get out of the wetlands, the habitat appears to be drier than what I would think to be especially attractive to this species.

11. *What are the specific potential hydrological impacts to off-site habitats mentioned in Dr. Danzer's remarks (Page 3 of 7). What additional specific mitigation measures could be employed to minimize these potential hydrological impacts?*

Specific hydrological impacts to off-site habitats are greatly detailed in my accompanying Environmental Report dated 5/21/14 under Comments #2, #3, #4, and #5. To summarize, it would be expected that post-development, the downstream off-site reaches of the stream will be less likely to flow seasonally and more likely to resemble an ephemeral system, accelerating erosion and leading to a loss of those understory plant species such as skunk cabbage and tussock sedge that require, at a minimum, seasonal ground water seepage to support soil saturation.

Avoidance of the recharge zone (where the compound is proposed to development) and/or reducing the size of the footprint of the compound to minimize permanent disturbance to the recharge zone are both examples of measures that can be employed to minimize hydrological impacts.

Respectfully submitted,

Dr. Steven Danzer