BEFORE THE ENVIRONMENTAL AND LAND USE HEARINGS BOARD

FRIENDS OF GRAYS HARBOR and WASHINGTON ENVIRONMENTAL COUNCIL Appellants, v. CITY OF WESTPORT et al. Respondents	)	ELUHB 03-001 *ET SEQ.* **PRE-FILED TESTIMONY OF ALFRED M. WIEDEMANN, PH.D.**

Outline of Testimony

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1. I have personal knowledge of the facts stated in this testimony and would be competent to testify thereto. The remainder consists of my professional opinion based upon my expertise in relevant fields, as discussed below:

BACKGROUND

Current Position and Experience

2. I am a retired Professor of Ecology and Environmental Sciences. I taught courses in these subjects at Evergreen State College for 35 years.

3. I have significant expertise on the subject of dune ecology and morphology. I have spent almost 40 years studying and teaching college level courses on coastal dune systems. I have a Ph.D. in plant ecology from Oregon State University, and completed my dissertation on the Ecology of Coastal Dunes in 1966. Since then, I have studied the distribution of dunes, dune dynamics, dune development, etc.

4. I am considered an authority on the subject of dune systems. I am an author of two books on dune systems: *Plants of the Oregon Coastal Dunes* (1969) (Revised 1999), and *Ecology of Pacific Northwest Coastal Sand Dunes: A Community Profile* (1984). The latter book was written for the U.S. Department of Fish and Wildlife, and was cited as best available science in the development of the new Wetland Rating System for Western Washington for the rating of interdunal wetlands. (Ecology 2004). I have also written more than 10 other published works on dune ecology.

5. I have evaluated project plans for the Links at Half Moon Bay proposal and have visited the site for that project (project site) numerous times over the past 30 years. I also supervised four students in a dune ecology course who reviewed and commented upon the Links proposal.

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6. Attached is a copy of my work, *Ecology of Pacific Northwest Coastal Sand Dunes: A Community Profile* (1984) (Trial Ex. A155).

EXPERT OPINION

7. All opinions stated herein are drawn from my review of the above described documents and my expertise in the fields.

8. It is my opinion that the project would destroy the present functions and values of the dune and wetland systems on the project site and would impact to an unknown extent the remaining parts of the wetland system and downstream habitat and water quality.

Uniqueness of Site

9. Coastal dunes are important and unique ecosystems. There is reason to believe that the dune system and interdunal wetlands extending onto the project site are unique in the region and play critical regional functions in terms of hydrology and habitat. I know of no similar area in Washington; the nearest similar site is about 200 miles south of the project site.

10. Undeveloped dune systems of any substantial size are also a rare ecosystem. The Department of Ecology's 1974 Coastal Dune Study (Ruef 1974), a copy of which is attached as *Trial Ex. A56*, documents the rarity of coastal dune areas in Washington, and is one of the most comprehensive sources on the subject. That study found that, as of its writing, there were only nine large dune areas in Washington that had not been developed. *Trial Ex. A56 at p.21*. Of those, the dune system on the project site was one of the largest and had the widest deflation plain unit. *Ex. A56 at p.22.* It is my experience that there has been ongoing development in southwest Washington since 1974 and it is likely that there are now fewer than nine undeveloped systems of this type.

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11. This project site is also unique in the level of public access to the dune systems. State Park land lies on the north and south of the project site and a public trail extends along the entire western side of the property. This trail connects the two State Parks and is very popular. From both State Parks and the trail one can get an expansive view of the undeveloped dune and wetland system extending from the project site to Westport Light State Park. The backdrop is largely forested with no major developments in view. This public access to the dune system is quite rare and important. It is an important amenity to the Parks and to the region. I know of no other trail allowing even the mobility impaired to enjoy such a large expanse of coastal sand dunes. The value of the dune and wetland system on the project site is increased because a large portion of the systems is protected by virtue of being on State Park property.

Beneficial Uses

12. The unique features of the project site provide many beneficial uses. These include:

13. Fish and wildlife habitat. The unique features of Pacific Northwest coastal dune systems, with forests, meadows, marshes and lakes are habitat to a great number of animals and plants. *Trial Ex. A155 at p. 2.* There is evidence this particular project site is used by coho salmon, a candidate species under the Federal Endangered Species Act, migratory birds, and other wildlife. The presence of salmon in this wetland system is unique and itself should provide a basis for protecting this system.

14. Water quality and quantity. Interdunal wetlands provide water quality and quantity benefits to both surface and groundwater. The wetland system at issue drains to the Grays Harbor Estuary and rests above an aquifer used as the City's drinking water source.

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15. Protection against coastal erosion. Dune systems provide a natural buffer to protect development from the erosive forces of the coast. The dune system provides an area for harmless coastal retreat during erosion trends times. It also provides a buffer for wave energy and a place where wave overtopping can dissipate before it reaches development.

16. Educational opportunities. The project site provides irreplaceable opportunities for public study of coastal dune and wetland ecology. I have taken college students on a field trip to the Westport dunes and supervised students in a dune ecology course who reviewed and commented upon the Links proposal.

17. Passive recreation. The project site's location near State Parks and its rich diversity of plant and animal species make it an ideal location for passive recreational activites.

Fragility of the Site

18. The complexity, importance and fragility of dune systems is accurately described in the Department of Ecology's 1974 Coastal Dune Study (Ruef 1974), *Trial Ex. A56.* Dune systems are extremely fragile and development and other human activities have impacted the majority of dune systems in the State. The literature confirms that the delicate balance of the dune system can be destroyed by large scale development, altering the hydrologic systems, filling of interdunal wetlands, and the development of path and road systems (Ruef 1974). *Trial Ex. A56 at p.19-21*.

Likely Impacts of the Links Project

19. There is no question that the proposed development will fundamentally destroy the functions of the dune and wetland system on the project site. Even if the structure of the wetland system were to be preserved, the habitat values would be destroyed. The birds and

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wildlife that have been documented on the site would not continue to use the site if it were converted to a golf course. The construction of the golf course would likely destroy or displace most individual fish and animals. The ongoing use of the site as an intensive recreational facility would discourage fish and animals from repopulating the site.

20. The construction and maintenance of the golf course would fundamentally destroy the dune ecology itself. The development will likely destroy the dune ecology by (1) altering the hydrology and therefore plant succession; (2) filling the wetland and therefore altering water impoundment and plant succession; (3) making major alterations to dunes and therefore contributing to erosion; (4) building extensive cart paths throughout the system; and (5) introducing large numbers of people and cart traffic to the system. Such uses and development are recognized as negatively impacting dune systems. *Trial Ex. A56 at pp. 19-21.*

21. Substantial development on the project site can be expected to impair the functions of the dune and wetland systems on the Westport Light State Park property. Only large undeveloped parcels of land can serve many habitat values. Thus, development on the Project Site may significantly impair the habitat remaining undeveloped on the Westport Light State Park property. Moreover, salmon have been found in the wetlands on the project site have access to the wetlands on the Park site. Impacts on the project site therefore would impact the value of salmon habitat on the State Park site.

Mitigation

22. I am familiar with the Applicant's proposal to mitigate impacts to the interdunal wetlands by excavating adjacent dunes.

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23. In essence, the Applicant suggests an ability to successfully relocate wetland and dunes in this complex system. This is not the case. Dunes and interdunal wetlands are created by a complex interaction between environmental systems and they cannot be recreated at will. See *Trial Ex. A155 at p.7* ("The coastal sand dune landscape is the product of geologic events that have occurred in the past and continue to the present, of wind and water movement, of sediment supply, and of the effects of vegetation. Other forces are at work also, such as soil formation, fire, and human activity, but these tend to modify the landscape rather than create its basic form."). Moreover, both dunes and wetlands are critically important to the habitat and structure of the dune ecology. Impacts to the dunes inevitably decrease the functions of the system and negatively impact the adjacent wetlands. Rather than mitigating impacts, this type of action would reduce upland habitat and likely impair water quality.

CONCLUSION

24. Based upon my experience in dune ecology, the proposed development would destroy the present functions and values of the dune and wetland systems on the project site and would impact to an unknown extent the remaining parts of the wetland system and downstream habitat and water quality. The "mitigation" proposal to excavate dunes in this system would merely exacerbate these impacts.

25. In reaching the conclusions stated herein, I relied upon the above-referenced exhibits and documents attached hereto, which I consider to be authentic and reliable. The underlying facts and data within these sources are of a type reasonably relied upon by experts in my field in reaching the types of conclusions set forth in this testimony.

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Stated under oath this 8th day of August, 2005, in Seattle, Washington.

Alfred M. Wiedemann, Ph.D.

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