

# Exhibit A

## Findings Of Fact

### Background

1. Dunes City encompasses lands bordering three lakes as well as several streams. Little Woahink Lake, a small lake, drains into Woahink Lake, which drains into Siltcoos Lake. They are reported in Lane County's Coastal Water Supply Study as being important sources of water, including ground water recharge, for the entire area south of the Siuslaw River.<sup>1</sup>
2. The surface and groundwaters of Dunes City are at risk for contamination as designated by Oregon Department of Environmental Quality. Source water assessment studies have specified that lands within 1,000 feet from streams and lakes as sensitive areas needing protection because of high soil erosion potentials, high runoff potentials, and high permeability soils.<sup>2</sup>
3. In the Source Water Assessment for Dunes City, Siltcoos Lake is listed at high risk for turbidity because of "siltation and algae blooms that are both currently causing problems with water filtration."<sup>3</sup>
4. Changes to Siltcoos and Woahink Lakes have been noted in various studies, including a 1999 study by the U.S. Forest Service, Siuslaw National Forest which states: "If nutrient levels continue to increase relatively unchecked by State or County officials, problems such as those in Tenmile Lake south of this watershed will begin to take place. In Tenmile Lake, toxic algal blooms (Microcystis) have made water unsafe for drinking or recreation during certain times of year with uncertainty of its long-term effects on public safety and the viability of local tourism."<sup>4</sup> Also, Tenmile Lake is the subject of Oregon Health Division health hazard advisories.<sup>5</sup>
5. Input of excess nutrients is almost always associated with human activity. Nutrients are in Dunes City soils and are released or added through human activity, including soil disturbance associated with new developments. Nutrients enter surface waters and ground waters and ultimately flow to wetlands or lakes. They enter these critical areas either in solution in water or attached to sediments. Sediments moving downward to wetlands or lakes can smother life-forms that beneficially uptake these nutrients and can transport the nutrients directly into lake waters.

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<sup>1</sup> Lane County Coastal Domestic Water Supply Study, August 1979, Pages 28, 34, 41–42, & 55

<sup>2</sup> Dunes City Drinking Water Source Assessment and Potential Planning Strategies, December 2002, Page 3; Source Water Assessment Report, Summary Brochure, Alderwood development Company, PWS #4100304, September 11, 2001, Pages 1 & 2; Summary Brochure, South Coast Water District, PWS 4100302, August 2001, Pages 1 & 2

<sup>3</sup> Lane Council of Governments (December 2002), "Source Water Assessment for Dunes City," pg 25.

<sup>4</sup> Siuslaw National Forest, Coastal Lakes Watershed Analysis," January 1999, pp. 48–9.

<sup>5</sup> Oregon DEQ Fact Sheet: Tenmile Lakes Septic Systems. <http://www.deq.state.or.us/wq/wqfact/tenmilelakes.pdf>

Water Quality Concerns – Woahink Lake

6. A 2001 Portland State University Study notes: “Erosion in the watershed contributes sediment to the arms of the lakes. Continued high sediment loading to Woahink Lake will eventually lead to changes in the lake trophic state and degradation of water quality.”<sup>6</sup> The study further notes that there are “Critical Problems to Address” and that in Woahink Lake, this includes “nutrient loading to the lake to prevent further increases in productivity and the potential for hypolimnetic dissolved oxygen depletion that could lead to irreversible degradation of the lake.”<sup>7</sup>
7. Little Woahink Lake drains through an important inventoried significant wetland directly into Woahink Lake. It has been documented that the construction of a road located adjacent to Little Woahink Lake in the fall of 2005 and early 2006 produced pronounced erosion, pools of muddy water at culvert locations, and sedimentation flows down the roadside, into the lake and adjoining wetland. The sedimentation from this construction, was so severe that residents downstream in Woahink Lake had water filters literally clogged with sediment as a result. Any worsening of Woahink Lake waters will impact Siltcoos Lake waters since Siltcoos receives all the flows from Woahink Lake.

Water Quality Concerns –Siltcoos Lake

8. The waters of Siltcoos Lake are impaired and at risk. Siltcoos fails certain water quality standards and has been listed as an impaired water body under Section 303(d) of the Clean Water Act. It is listed under Record ID 2773 in DEQ's Water Quality Limited Database and DEQ's TMDL Documents as impaired for "aquatic weeds or algae."<sup>8</sup>
9. The 303(d) listing of Siltcoos Lake will involve various state agencies and other jurisdictions in establishing a water-quality implementation plan to reduce nonpoint nutrient pollution. These plans will consider the cumulative impact from all nutrient sources including pollution sources from the City.<sup>9</sup> Further, Siltcoos Lake was found to have the highest concentrations of chlorophyll-a, total nitrogen, total phosphorus, and the lowest clarity among the 5 coastal lakes studied in 1996 by Dr. Richard Petersen, Portland State University.<sup>10</sup>

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<sup>6</sup> Mark Sytsma and Carrie Haag, “Oregon Lake Watch Final Report 2000,” Portland State University (2001), pg 10.

<sup>7</sup> *Ibid.*, at pg 22.

<sup>8</sup> *Coastal Lakes Watershed Analysis*, Siuslaw National Forest Service (January 1999), Pages 51 & 57.

<sup>9</sup> See DEQ TMDL Fact Sheet 2003.

<sup>10</sup> Richard Petersen, “Trophic Conditions in 5 Oregon Lakes,” Portland State University – Oregon Department of Environmental Quality, 1997.

10. The Council notes that state-wide Goal #6, requires that, "All waste and process discharges from future development when combined with discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards."<sup>11</sup>

#### Soil Erosion and Sediment Control

11. "When left uncontrolled, large amounts of soil and other small particles collectively called sediment can move off of construction sites along with other attached pollutants. By volume, sediment is the greatest pollutant entering our surface waters, and causes multiple problems. Sediment buries plant and animal habitat critical to healthy streams, lakes, and wetlands. . . Sediment that remains suspended in the water column reduces water clarity, inhibits aquatic plant growth, lowers the esthetic and recreational values of water resources, and makes it difficult for some fish to find food. Suspended sediment increases the solar heating of water, scours aquatic life in streams, and clogs the gills of fish and aquatic insects. Warm water holds less oxygen than cooler water (oxygen is vital to aquatic animals) and increased water temperatures are stressful to coldwater fish such as trout. Particulate-bound nutrients, such as phosphorus delivered to surface waters by eroded soils, often causes algal blooms and alterations in the food chains, which further reduces the quality of these water resources."<sup>12</sup>
12. "Natural vegetation is remarkably effective at filtering contaminants before they reach water bodies or seep into the ground water. It can also slow the speed of runoff to prevent erosion. Vegetative measures capitalize on these abilities to promote filtering or infiltration of wastewater. They are often used to mitigate the damage caused by runoff. Examples include constructed wetlands, vegetated buffer strips along shorelines, or grassed swales or depressions that collect runoff, encourage infiltration, or reduce erosion.
- Some of these practices may be imposed by local ordinances or health regulations. Regulations can be an effective way to control certain activities in source water protection areas. Construction and operating standards may be imposed to reduce threats to water supplies from some activities. Without appropriate erosion and sedimentation control (ESC) measures, construction activities can contribute large amounts of sediment to storm water runoff.
- Ordinances can require plan reviews of construction activities to ensure that erosion is minimized, or require ESC measures during construction. Inspections and repairs will maintain the working order of ESC measures."<sup>13</sup>

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<sup>11</sup> OAR 660-015-0000(6).

<sup>12</sup> *U.S. Geological Survey Fact Sheet FS-109-00*, August 2006

<sup>13</sup> *Source Water Protection, Best Management Practices and Other Measures for Protecting Drinking Water Supplies*, U.S. Environmental Protection Agency, August 2002

**Conclusions**

1. Dunes City's primary ordinance 154.05 lacks prohibitions against soil erosion as well as meaningful and clear standards or mechanisms to prevent, limit or control surface erosion. There are no provisions for effective site review or erosion plans. The ordinance does not prevent erosion, it merely declares erosion "detrimental" in certain instances. In all instances where erosion remains on the lands of the project owner it is not even "detrimental."
2. Residential development in Dunes City under existing regulations and absent a more specific erosion control ordinance will harm water quality, cause substantial harm to Dunes City, and represent a great risk of uncertainty to property owners in the future.

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