

TO: Kate Akyuz, King County Willowmoor Project

October, 2018

FROM: Martin Nizlek, Lake Sammamish Resident

RE: Submission of Water Level Issue Photos

Kate, I am replying to your request for pictures of high water events on Lake Sammamish for your use in preparing evaluative studies for the Willowmoor Project (Willowmoor). The pictures will be supplied separately but are inserted here for clarity and description.

I find that I cannot, in clear conscience, simply supply pictures showing water levels without some explanation as well of the consequences and impacts, many of which you may not be aware of. For example, with the changes to the Transition Zone (TZ) maintenance, there were a host of issues that arose for us here on the lake. I explain these below and hope this helps in understanding the dynamic and far reaching effects witnessed over the last several decades on the lake.

Pictures 1 through 9 - Impediments to Flow

These photos cover the river from its mouth through the TZ and downstream showing items that have had an affect on flow. I do not mention Bear Creek, but take that as a given (not that we should be oblivious to its effect on lake levels). Generally, the filenames for these photos explain what is being shown, when, and where. While the photos are dated, the issues often recur each season.

To be effective, Willowmoor must consider and plan how to manage such impediments to flow.

	
<p>1 - Lilly Pad Infestation River Head 2016</p>	<p>2 - 4" Diameter Willow from TZ 2010-2011</p>
	
<p>3 - Brush Trimmings and Dog Balls 2011</p>	<p>4 - Cattail Infestation at Weir 2012</p>



5 - Logs Blocking TZ Fall 2015



5a - Forced Divert TZ Post Sediment Removal 2013



6 - Growth Remaining North End TZ 2014 & On



7 - River Blockage at Park Entrance 2014 & On



8 - Beaver Blockage Below TZ 2015



9 - Beaver Blockage Below TZ 2015

The above photos show impediments to flow beginning at the mouth of the river at the north end of the lake. Infestations of lily pads, channel bank growth, and even cattails across a substantial portion of the weir deter flow. These may be the cause of the differential water elevations reported between water level gage readings at the weir versus on the lake.

With respect to the TZ, I and others have previously documented issues therein. Beyond the TZ, the provided photos indicate further flow reduction impediments that need attention. Together, the cumulative effect has been raised water levels on Lake Sammamish and damages to both improvements & environment.

Pictures 10 through 18 - Damages

Erratic lake water levels have a variety of impacts; including dock damage, shoreline erosion, undermining of bulkheads and other improvements, as well as physical loss of property.



10 - Dock Piles "Popped" 2012



12 - Decking Submerged 2015



11 - Deck Destruction 2012



13 - Dock Destruction 2015



14 - Bulkhead Undermining 2011



14a - Soft Stabilization Undermined 2016

	
<p>15 - Major Erosion - Land Loss 2012</p>	<p>16 - Major Erosion - Land Loss 2012</p>
	
<p>17 - Shoreline Tree Loss 2014</p>	<p>18 - Benching Along Shoreline/Land Loss 2013</p>

As shown above, legally developed shoreline improvements, such as docks, bulkheads, and even mandated "soft stabilization" have faced destruction from high water levels. Several years ago WA Sensible Shoreline conducted a survey of lake property owners to determine over the last decade what repair costs have amounted to. WSSA estimated the magnitude may exceed \$10 million.

But, there are more subtle impacts. Loss of vegetation and erosion from extraordinarily high waters not only impacts lake water quality, but also diminishes shore accessibility and property value. Pictures 15 through 18 document these impacts.

Pictures 19 through 27 - Examples of High Water Levels and Related Factors

The following photos respond directly to your request showing the inundation of high water levels at several points in time; one dating to 2006. Unless otherwise noted, the locations are on the west side of the lake, primarily in Bellevue, but some in Redmond.

Subsequently there are several photos showing the consequences - including loss of access to shoreline improvements and dangerous situations created when docks are (mandated to be) built at levels inappropriate for actual lake conditions. The last sequence of pictures present the issue of fetch - specifically, the predominance of cross-lake winds to produce waves that amplify water levels and increase the destructive action (as shown in the last photo).



19 - Shore Inundation 2015



20 - Shore Inundation 2014



21 - Shore Inundation 1997



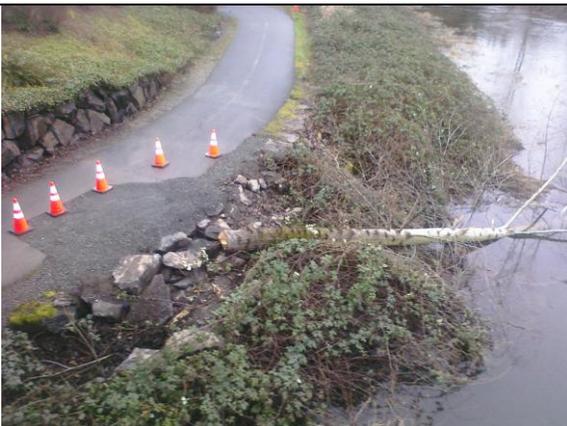
22 - Poorly Designed/ Dangerous Dock 2016



23 - Inaccessible Boating Conditions 2012



24 - Damage to Public Improvement 2015



25 - Damage to Public Improvement 2010



26 - Wave Fetch (SE to NW) 2010



27 - Storm/Fetch Conditions SW Lake Samm. 1996

Summary

Photos have been provided with a description of their relevance to residents who have voiced concern since 2010 when we learned that maintenance of the Transition Zone had been dramatically reduced over the years while obstructive vegetation was introduced in the TZ. Lake residents, including myself, continue to emphasize that the Willowmoor project must be shown capable of mitigating these issues.

Kate, should you have questions regarding this submission, please let me know. I ask that this submission be made an official part of the project record.

Martin Nizlek
(Resident and Board Member - WA Sensible Shorelines Association)
Bellevue WA

cc: Charles Ifft, US Army Corps of Engineers
Board of Directors, WA Sensible Shorelines