

January 23, 2008

Mr. M. Foley
C.E.O.
City of Swan
P.O. Box 196
Midland, WA 6056

Dear Mr. Foley:

I appreciate the opportunity to supplement testimony provided on November 25th when the council voted to delay a decision of the proposed Brigadoon Northern Development. In my original testimony, I explained how the native forest was able to reach water through dense subsoil, and the ramifications of reducing forest cover on increasing the runoff into the Swan River.

Based on recently published research by colleagues at the University of Western Australia, the implications of reducing forest cover by approximately 50%, as required in the Fire Management Plan, have predicted consequences well beyond those associated with increased runoff. Specifically, more than a 10-fold increase in salt concentrations could result in the portion of the Swan immediately below the proposed development (for reference, potable water contains less than 500 mg per litre of sodium chloride). These predictions, which have an accuracy of over 95%, are based on detailed computer simulation models and actual field experiments.

In three journal articles for which copies are provided, the following key points are made:

- 1) The proposed development is situated in a very sensitive area for releasing large amounts of salt into the upper Swan drainage.
- 2) With removal of half the forest cover, the ground water will rise from below 10 m to reach salt accumulation in the subsoil, likely within a decade (depth to local ground water should be surveyed).
- 3) Runoff will increase by about 30% and salt concentrations will rise from less than 500 mg per litre to more than 5000 mg per litre within a decade
- 4) Stream bank vegetation in the upper Swan (below bridge in park pictured in previous testimony) will be eroded by higher flows and likely killed by higher salt concentrations.
- 5) Farms situated below the proposed development will experience reduced productivity in association with a rising water table that releases salt stored in the subsoil of the upper catchment.

Previous to this research, a council might assume that clearing 50% of the forest from the upper catchment might have only a small effect. In reference to the predicted

consequences on salinity alone, the consequences are far greater than we previously imagined. If the housing development is approved, farmers and others that are predicted to suffer degradation of their water resources may have a basis for legal action against those approving the development as well as the developers.

Respectfully,

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References:

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