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By email: [Barbara.Slattery@Ontario.ca](mailto:Barbara.Slattery@Ontario.ca)

Re: Town of Erin Urban Center Wastewater Servicing Class Environmental Study Report  
Concerns over Brook Trout and Fish Habitat on the West Credit River

Dear Ms. Slattery:

Thank you for your 3 December 2020 response to our 23 June 2020 submission regarding our concerns and recommendations in connection with the Town of Erin Urban Center Wastewater Servicing Class Environmental Study Report (ESR).

The Ontario Rivers Alliance (ORA) strongly disagrees with your response to our numerous concerns and recommendations when you assert that you “*have concluded that temperature effects have been adequately assessed using field data, a nearby wastewater treatment plant’s effluent temperature data, and CORMIX – a state-of-the-art mixing model*”. Your response totally ignored a key issue we raised that will impact on every aspect of stream health and Brook Trout survival, both over the short term and into the future.

#### **Climate Change:**

You commented that the “*Climate change impact was considered in the assimilative capacity analysis by considering a 10% reduction of the receiving water’s 7Q20 flow. The 7Q20 flow was calculated by Credit Valley Conservation (CVC) and corrected for climate change with a 10% reduction of the annual 7Q20 estimate and used as input into the models.*” However, you neglected to respond to our detailed concerns regarding the increasing influence that climate change will have both now and into the coming years on rising ambient air temperatures, rising ground and groundwater temperatures and that warming influence on effluent temperature, stream temperature, and the resulting thermal effects on Brook Trout and fish habitat.

You mention the 10 April 2018 Ainley response to MECP’s request for further consideration of thermal impacts and suggested that “*according to the Ministry’s evaluation of the information the proposed discharge is not expected to cause any adverse effects on the survival, growth and reproduction of the Brook Trout population*”. However, we refer you to a 12 June 2018 letter from Tara McKenna (MNRF) to Ainley Group regarding the Thermal Assessment:



*“Climate change: It is noted that a “correction” was applied to 7Q20 to account for climate change, but what about for stream temperatures? Given the importance of temperature to Brook Trout life history, as well as the influence of temperature on ammonia speciation, MNRF recommends that this should be considered and simulated.*

*Assumptions about effluent temperature based on Elora WWTP – does this facility service the same number of residents? Employ the same treatment technology as what is being proposed for Erin WWTP?”<sup>1</sup>*

First of all, it is important to note that this [12 June 2018 letter](#) was not made available in the ESR for public review. However, McKenna’s comments that we have been able to access show that the MNRF continued to have concerns that a correction to flow was not sufficient to satisfy climate change mitigation, and that ammonia in effluent, and stream temperature, should also be considered and simulated. As you are undoubtedly aware, the unionized component of ammonia is toxic to aquatic life, and higher temperatures result in a higher fraction of unionized ammonia. So, temperature is a crucial consideration.

This [Ainley 31 October 2018 response](#) to Tara McKenna’s comments was also not included in the ESR: *“HESL [Hutchinson Environmental Sciences Limited] is not aware of any provincial or federal guidance with respect to responses of water temperatures in groundwater fed rivers to climate change. If MNRF is aware of any work or research in this area, we will review this documentation, and determine if our temperature assessment for ammonia in the ACS requires updating.”<sup>2</sup>* Absolutely, there have been numerous government sponsored studies and reports indicating the need to consider climate change in every aspect of development and freshwater health and resilience. Simple common sense should have compelled MECP to take meaningful action to ensure effective mitigation measures to fully address climate change.

ORA’s submission referred to a 2015 MNRF report<sup>3</sup>, a 2020 Ottawa climate study<sup>4</sup>, and a 2012 Toronto Future Weather and Climate Driver Study<sup>5</sup> indicating that temperatures are predicted to rise significantly over the next 20 to 30 years. Additionally, *A Made-in-Ontario Climate Plan*<sup>6</sup> reports a predicted temperature increase of between 3 to 4°C by 2050. In fact, *“All five datasets surveyed by WMO concur that 2011-2020 was the warmest decade on record, in a persistent long-term climate change trend. The warmest six years have all been since 2015, with 2016, 2019 and 2020 being the top three.”<sup>7</sup>*

Yet, an allowance for a projected temperature increase as a result of climate change was not addressed in the ESR in relation to its thermal effects on effluent temperature and stream ecology. Without requiring effluent temperature limits and design objectives there will be no compliance requirements or penalties to ensure any exceedance is mitigated and/or avoided.

Your claims that relied upon modelling to determine when Brook Trout’s upper tolerance threshold temperatures would be met or exceeded at the diffuser, including during the full buildout scenario,

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<sup>1</sup> 12 June 2018 letter from Tara McKenna, District Planner, MNRF, to Preya Balgobin, Senior Project Manager, Ainley Group – Temperature Assessment.

<sup>2</sup> 31 October 2018 – Ainley Group – HESL response to Tara McKenna, MNRF District Planner. P-14/31

<sup>3</sup> Climate change projections for Ontario: An updated synthesis for policymakers and planners (Climate change research report: CCRR-44).

<sup>4</sup> Prepare for hotter, wetter capital over the next 80 years, Ottawa Citizen, 10 June 2020.

<sup>5</sup> Toronto’s Future Weather & Climate Driver Study: Outcomes Report. P-15

<sup>6</sup> Preserving and Protecting our Environment for Future Generations, A Made-in-Ontario Environment Plan. P-16/54.

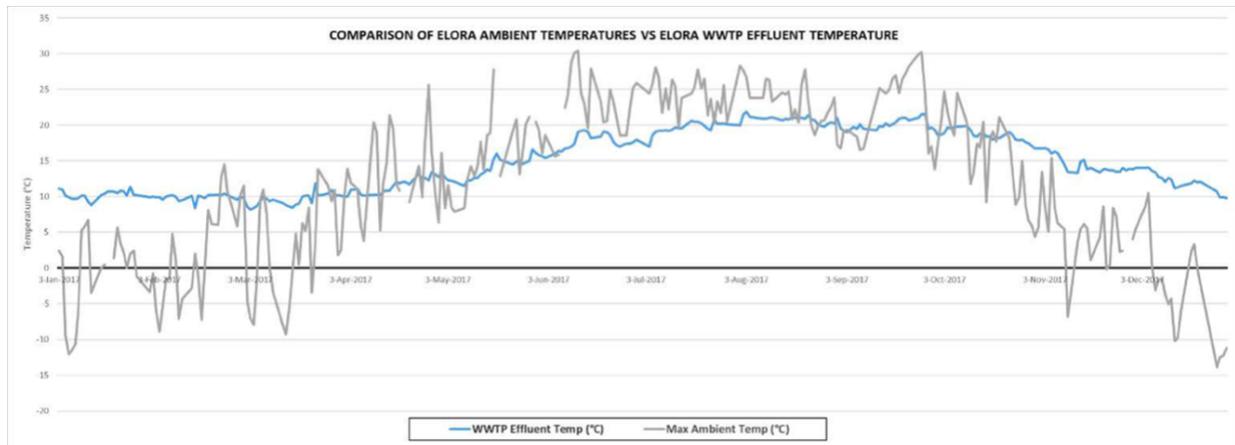
<sup>7</sup> 2020 was one of the warmest years on record, World Meteorology Organization.



are faulty and unrealistic when they do not take into account the influence of climate change and its increasing influence on rising ambient air, effluent and stream temperatures.

There is evidence in the ESR indicating that warmer weather does have an impact on effluent temperature. Figure 2 below, demonstrates that air temperature does not have much effect in its daily temperature swings; but, as you can see, it does affect effluent temperature significantly over the seasons<sup>8</sup> and will also raise temperatures over the years in a warming climate:

Fig. 2. Comparison of Elora Ambient Air Temperatures with Elora WWTP Effluent Temperatures



Consequently, we have no confidence in your conclusion that “*effluent criteria agreed upon to date will be protective of all forms of aquatic life and all aspects of the aquatic life cycles during indefinite exposure*”.

If due diligence had been done, the Thermal Assessment would have included mitigation measures and an allowance in consideration of climate change in recognition of its influence on rising ambient air temperatures, ground, groundwater, effluent and stream temperatures over the short-term and for the life of the plant. These measures are essential to ensure this coldwater Brook Trout habitat would not be adversely impacted.

### Thermal Assessment:

In defending your conclusion that temperature effects were adequately assessed you referenced using field data, a nearby wastewater treatment plant’s effluent temperature data, and CORMIX.

The data referred to in the ESR from the Elora Wastewater Treatment Plant was not made available in the ESR for review; therefore, it is not possible to confirm the data (please note that we had to file a Freedom of Information Application for this data and are still waiting to receive it). Additionally, the Thermal Assessment makes narrow and weak assumptions when the effluent temperature data used as the basis for the Thermal Assessment conclusions used only one year (2017) of data from the Elora WWTP<sup>9</sup>. However, as you can see in Figure 1 and Table 1 below, 2017 was an overall cooler summer. To provide a more realistic estimate of the effects of effluent temperature on stream temperature, 10 years of data would have provided a more realistic

<sup>8</sup> ESR, Volume 2 of 3 - Part 1, Figure 2, Comparison of Elora Ambient Air Temperatures. P 278 - 279/317.

<sup>9</sup> ESR, Volume 2 of 3, Part 1, Thermal Assessment, Mass Balance Model Results 280/317.



estimate for the analysis and, of course, is still insufficient unless climate change effects on temperature have been fully taken into account. (Figure 1 and Table 1). [All data is provided here.](#)

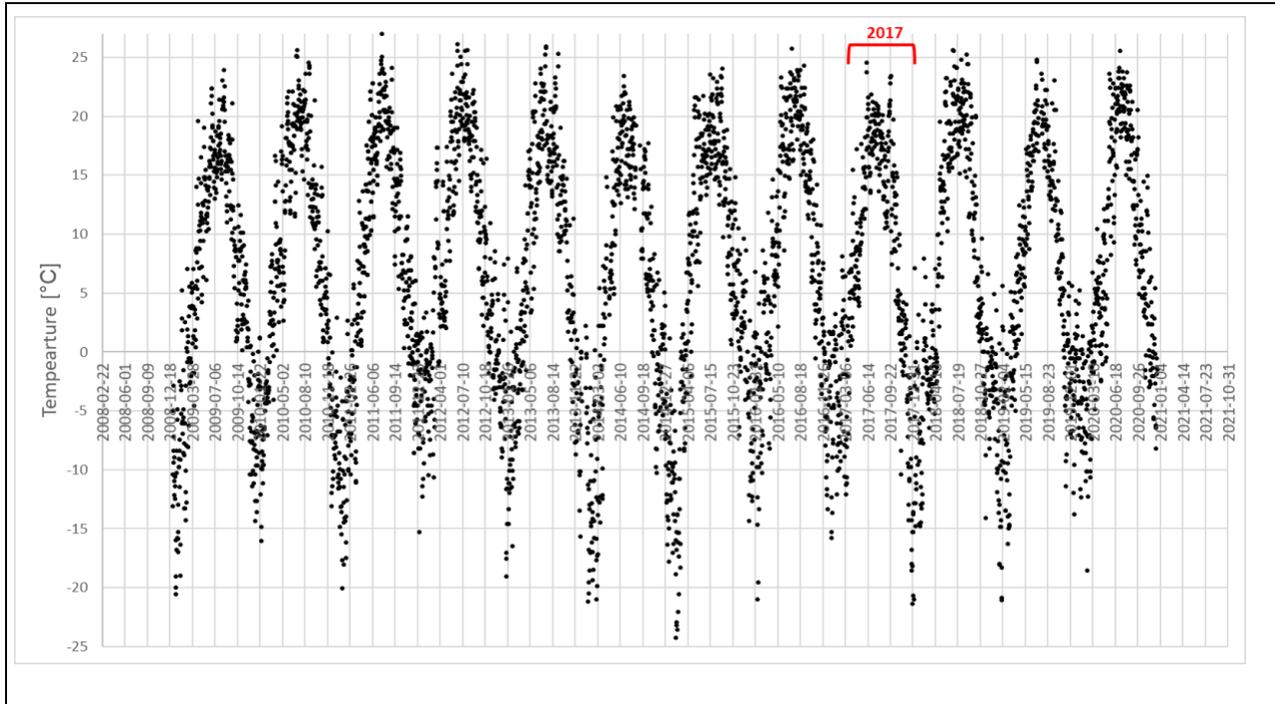


Figure 1. Daily Average Air Temperatures at Elora Environment Canada Weather Station RCS Weather Station. (Station ID 6142286)<sup>10</sup> The summer of 2017 is a colder than other years.

Table 1. Number of days with Ambient Air Temperatures over 20 °C in July and August.

Year	2009	2010	2011	2012	2013	2014	2015	2016	<b>2017</b>	2018	2019	2020
<b>Days over 20°C In July &amp; Aug</b>	13	28	30	27	23	6	15	32	<b>12</b>	31	16	34

### Effluent Temperature Limits and Design Objectives:

Please note that Tara McKenna, MNRF, felt temperature parameters were indeed necessary, right up until her 5 March 2019 comments to Ainley Group, when she asked for the development of “a mitigation strategy (or other approach) to address exceedances in the predicted temperature levels. This may be important to ensure the Brook Trout population would not be adversely impacted under such circumstances.”<sup>11</sup>

<sup>10</sup> Environment Canada Historical Data from Elora RCS - Station ID 6142286

<sup>11</sup> ESR, Volume 3 of 3, Part 2, Appendix W, ESR Review Comments, Part II Order Requests & Resolutions. P-286/384.



We point out that both McKenna's 12 June 2018 and 5 March 2019 comments indicated she was concerned that effluent temperature mitigation and exceedances had not been adequately addressed, and that this was important to ensure Brook Trout would not be adversely impacted. Please note her comments below:

- **12 June 2018: Tara McKenna, MNRF Comments to Ainley Group (Missing from ESR):**  
*"MNRF staff recommend modelling for full range of effluent temperature scenarios – include diurnal/seasonal variation in effluent temperature – not just 75<sup>th</sup> percentile.  
"No mitigation for potential thermal impacts appears to have been identified. Is there an option to cool the effluent before discharging into the river?"<sup>12</sup>*
- **5 March 2019: Tara McKenna, MNRF Comments to, Ainley Group<sup>13</sup>:**  
*"As acknowledged by the project team, Brook Trout are highly sensitive to thermal impacts. Taking this sensitivity into consideration, MNRF suggests that it would be beneficial to develop as mitigation strategy (or other approach) to address exceedances in the predicted temperature levels. This may be important to ensure the Brook Trout population would not be adversely impacted under such circumstances."*

In your response to ORA, you indicated that Hutchinson claimed there was no economically feasible means to adjust effluent temperature to meet the objective and limit proposed, and that this was validated by Ministry staff in an in-depth review of all existing and past municipal Environmental Capacity Approvals (ECA), but that no such ECA was found. ORA strongly disagrees with the Ministry's conclusion.

ORA's 23 June 2020 submission set out a number of cost-effective mitigation measures to effectively reduce effluent temperature, lower stream temperature and improve stream resilience. To that end, I would also draw your attention to a manual for small municipal wastewater treatment plants entitled, *Methods to Reduce or Avoid Thermal Impacts to Surface Water*<sup>14</sup>, which provides an excellent overview of a number of methods, including cost considerations, of eliminating thermal impacts from wastewater treatment plant discharges to surface water.

It seems pretty clear that something changed in MECP's mindset of requiring effluent temperature limits and design objectives after your own 3 August 2017 comments stating that *"Effluent temperature should be included as an additional parameter to protect the most productive Brook Trout spawning habitat immediately downstream of the proposed discharge. A compliance limit and a design objective for effluent temperature to protect cold water fishery downstream should be proposed."*

Ontarians have witnessed this government's rapid and thorough streamlining of key environmental policy and legislation to remove any and all barriers to development. There has also been an overall chill on agency staff in doing their job of ensuring environmentally sustainable development.

Whether effluent temperature limits had ever been required by MECP in the past is irrelevant. Our climate is warming, and the Erin Wastewater Treatment Plant (EWWTP) will place the West Credit River, and its fish and fish habitat at unacceptable risk. This is an exceptional circumstance

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<sup>12</sup> *12 June 2018 letter from Tara McKenna, District Planner, MNRF, to Preya Balgobin, Senior Project Manager, Ainley Group.*

<sup>13</sup> *ESR, Volume 3 of 3, Part 2, Appendix W, ESR Review Comments, Part II Order Requests & Resolutions. P-286/384.*

<sup>14</sup> *Methods to Reduce or Avoid Thermal Impacts to Surface Water. A Manual for Small Municipal Wastewater Treatment Plants. Pam Jenkins, P.E., Skillings Connolly, Inc., 5016 Lacey Blvd., SE, Lacey, WA 98503. Prepared for Washington Department of Ecology Water*



that requires exceptional and essential mitigation measures. Please explain how the Markdale WWTP avoided direct discharge of effluent in order to protect the sensitive Brook Trout population in the Rocky Saugeen.

Additionally, very minimal dilution of effluent will occur due to the very large flow of effluent compared to the very minimal 7Q20 stream flow of the West Credit River. Such minimal dilution will greatly magnify the negative effects of the warm effluent as well as the effects of low dissolved oxygen levels and potentially high levels unionized ammonia.

If the Town means to increase development and its tax base, then it must ensure it is done in an environmentally sustainable and responsible manner, and it's up to the MECP to require it.

Development has a cost, and measures to protect the environment must be assumed to be an essential part of that cost. It is simply not acceptable to sacrifice the West Credit River and its self-sustaining coldwater Brook Trout fishery for a larger tax base. If the Town had kept its more environmentally sustainable original plan of a population of 6,000, rather than its current plan for a population of 18,884, we would not be having this conversation. We would also not have had to appeal to Minister Wilkinson for a federal review under the *Impact Assessment Act*.

Newspapers have reported that 10 developers, eager to secure their planned residential developments, will pay for the cost of the plant, and that taxpayers won't have to pay a cent.<sup>15</sup> However, we submit that the population target and the size of plant approved by the MECP is excessive for such a small receiving stream, and places a sensitive and valued coldwater species at risk.

The Town of Erin, and apparently your own Ministry, still cling to the unfounded belief that the effluent temperature will be no more than 19°C during the summer period. Yet nowhere in the ESR is there any compelling evidence for this conclusion provided. Our 23 June 2020 submission clearly documents that effluent temperatures from the Orangeville Sewage Treatment Plant (STP) and the Shelburne STP exceed 21°C and approach 22°C during the summer. We also project that effluent temperatures will increase to 25°C over time due to climate change.

The data from the Elora STP, including the Elora STP effluent temperature graph provided above in this letter, clearly show that the temperature of the Elora STP effluent, during the cool summer of 2017, easily exceeded 20°C and appears to reach 22°C for extended periods. Yet the ESR concludes the effluent temperature from the Elora STP does not exceed 19°C.

The MECP was negligent in not requiring mitigation measures to effectively address climate change and failed in its mandate to ensure an environmentally sustainable wastewater treatment plant.

We remain concerned that the Erin ESR recommends that no effluent temperature limits are to be included in the ECA even though they were originally recommended by MECP and BM Ross in their initial 2014 ACS, as well as yourself in 2017.

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<sup>15</sup> *Development Deal: Erin drafts deal with 10 developers to pay for entire wastewater treatment plant and trunk lines, 28 October 2020.*



ORA's recommended mitigation measures to reduce thermal effects and increase stream resilience must be incorporated into the design, and effluent temperature limits and objectives must be required in the ECA.

### **Potential Impacts to Brook Trout Spawning Habitat and Life Cycle:**

Based on spawning surveys completed in the Fall of 2020, the potential impacts to brook trout spawning habitat and life cycle are identical for the reaches between 10<sup>th</sup> Line and Winston Churchill and Winston Churchill to Shaws Creek Road.

As flows approach 7Q20 conditions, the significant adverse impacts of depressed dissolved oxygen concentration, unionized ammonia and chloride within the effluent become more significant as mixing zone dimension increases.

Effluent limits should be of highest possible standard at the point of discharge in order to protect resident Brook Trout from the harmful effects of a mixing zone.

CCME criteria for dissolved oxygen, unionized ammonia and chloride should be adopted.

### **Culvert:**

You mentioned in your response that *"the 45m long culvert represents degraded habitat because it is permanently shaded, does not permit macrophyte growth and limits the form of the stream bed and width of the channel"*. Even though the culvert is 45m long and 100% shaded, it has a natural substrate of cobbles and gravel. The substrates allow for production of invertebrates which is an important food source for Brook Trout. Macrophyte growth is not important to the species. We submit that the habitat within the culvert is not degraded and likely supports Brook Trout throughout the year.

You further go on to state that *"According to modelling, Brook Trout's upper tolerance threshold temperatures are met at the diffuser from January to June. During July, background 75<sup>th</sup> percentile West Credit River water temperatures exceed the upper tolerance threshold value of 19° C, therefore the threshold will not be met downstream in that month. From August to December the distance to the point where effluent temperature declines to the upper tolerance threshold ranges from -2.5 m (backflow from the diffuser) to 32 m. These distances are in the degraded habitat within the culvert."* Again, your supposition is that habitat within the culvert is degraded, but that is incorrect.

### **Discharge Location:**

Additionally, your supposition that the 10<sup>th</sup> Line to Winston Churchill Blvd. is more sensitive as a coldwater thermal regime and habitat is flawed due to a lack of appropriate spawning survey data. Based on surveys completed in the Fall of 2020, both reaches are equally sensitive, having similar spawning activity occurring. MNRF did not agree with your decision making due to the lack of extensive field data and requested follow up spawning surveys be undertaken.

You stated that *"The mixing zone would be non-toxic, and the maximum dimension of the mixing zone for all other parameters would be 152 m long and would occupy 40% of the channel width of that distance without causing any barrier to fish movement."* However, this implies that



the mixing zone will have an impact on resident species because PWQOs and CCME water quality criteria are not met at point of discharge.

### **Follow-up to the Final Environmental Study Report (ESR):**

The Coalition for the West Credit, of which ORA is a supporting member, and local residents of Erin, have noticed that work in and around the subject Project site has already commenced, with large trees pulled out by the roots by a large machine, a forested area cut and burned, site grading and grubbing, and an Order 1 headwater tributary to the West Credit River being run through with huge ruts from a heavy machine, within the areas classified as (see Addendums 1 and 2):

1. Provincially significant West Credit River Wetland Complex,
2. Species-at-Risk Woodlands, and
3. Greenbelt Natural Heritage System.

However, there have been no Endangered Species Act or Ontario Water Resources Act permits or approvals or authorizations issued for this work by the Ministry of Environment, Conservation and Parks, Credit Valley Conservation and/or Department of Fisheries and Oceans, and this work is contrary to natural heritage policies of the provincial Planning Act.

Additionally, we carefully reviewed the ESR to see what Species at Risk may have been impacted by this irresponsible work. However, the ESR stated, *“Once the exact location is known we propose conducting additional bird surveys in the affected habitat to document whether any species at risk and sensitive species are present (such as Eastern Meadowlark, Bobolink, Savannah Sparrow) and formulate potential mitigation plans should they be required”*<sup>16</sup>. We found no evidence in the ESR that these *“additional bird surveys”* were ever done before they illegally destroyed potential species at risk and/or sensitive species habitat.

Please note that the final ESR provided two alternatives for the WWTP site; therefore, it is unknown whether these additional bird studies were completed once the Solmar site (Site 1) was chosen.

However, the ESR does say, *“In carrying forward two recommended alternatives for the WWTP site through to the final ESR, it is recognized that the municipality will need to prepare an Addendum to this ESR to make a final site selection. The addendum will need to provide details of the events that have occurred and the rationale for making the final location decision”*<sup>17</sup>. There was no Addendum included in the Final version of the ESR, nor have stakeholders received an Addendum to the ESR.

The 10 April 2018 Ainley response to Tara McKenna's 16 March 2018 comments, said, *“An arborist report of all affected areas will be prepared as part of an overall Environmental Management Plan for the project during the design stage”*<sup>18</sup>; however, there is no conformation or information to indicate that was ever done.

### **Once the final site selection was made were the following ever completed:**

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<sup>16</sup> ESR, Volume 2, Part 2, Hutchinson 11 April 2018 Response to Tara McKenna, Species at Risk, Comment #14. P-234/341.

<sup>17</sup> ESR, Volume 1. 13.4.3 Results of the Wastewater Treatment Plant Site Alternative Evaluation. P-139/526.

<sup>18</sup> ESR, Volume 2, Part 2, Hutchinson 11 April 2018 Response to Tara McKenna, Species at Risk, Comment #11. P-234/341.



- Arborist report for all affected areas,
- Environmental Management Plan,
- An additional bird survey, and
- Addendum to the ESR?

### **Cumulative Effects:**

Nowhere in the ESR were the cumulative effects of the full scope of the Project, and all that it entails, ever assessed on the effects to the natural environment and to the West Credit River. The only cumulative effects considered in the ESR were to justify the proposal for the wastewater treatment plant, in reference to the effects the existing local septic systems had or may have on the natural environment.

Most importantly, the ESR did not take into account the very large urban growth projected for Erin once the sewer system is built. This will require significantly more groundwater to be pumped from local aquifers to increase the potable water supply. More groundwater pumping likely from the same aquifers that supply baseflow to the West Credit River will undoubtedly reduce the baseflow in the West Credit. Reduced stream baseflow will further shrink the very marginal effluent dilution available now.

### **Conclusion:**

There was no acceptable reason for why effluent temperature limits and design objectives were not included in the final, 2017 Hutchinson ACS. ORA does not accept the reason you provided, as MNRF continued to request it right up to 2019, and even you were asking for an effluent temperature limit of 19°C, and a recommended temperature objective of 17°C. Yet, at the end of the Hutchinson ACS, the recommended effluent temperature limit and objective are suddenly dropped from Table 28 without any explanation.

As the MECP EA coordinator, you are fully aware that the foundation of a Class EA is to ensure that all decisions made with regard to the Project and ESR are reflected in a clear, transparent and traceable manner. This was not done when several key documents were missing from the ESR, and decisions were made without explanation.

ORA requests that the MECP provide a robust data set of the last 10 years from other local wastewater plants which clearly demonstrate that effluent temperatures will remain below 19°C during the entire hot summer period, as well as looking ahead into a warming climate.

The Ministry's Statement of Environmental Values (SEV) gives lip service to using a precautionary science-based approach, taking into account cumulative effects, preventing pollution, and "*to wisely use our air, water and land resources in order to generate sustainable environmental, health and economic benefits for present and future generations*"<sup>19</sup>. However, this means nothing unless the SEV is put into action in a meaningful way.

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<sup>19</sup> *Statement of Environmental Values: Ministry of the Environment and Climate Change.*



Respectfully,

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