

In reply, please refer to:

Our File: 13-8588

April 07, 2015

Conservation and Water Stewardship
Environmental Approvals Branch
160-123 Main Street (Box 80)
Winnipeg, MB, R3C 1A5

Attention Mr. Bereket Assefa, Ph.D., P.Eng.
Senior Environmental Engineer, Municipal and Industrial Section

**Re: Town of Winnipeg Beach, File 74.30, Lagoon Upgrade EAP
Additional Information Request**

Dear Mr. Assefa:

Thank you for your timely review of the Winnipeg Beach Lagoon Upgrade EAP. We have reviewed your request for additional information and have provided responses for the questions in the attached document. We have also attached a summary of the public information session hosted at the Town on 19 March, 2015. If you have any further questions please do not hesitate to contact the undersigned at 204-453-2301, or by email at fzurzolo@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED



Francesco Zurzolo, E.I.T., M.Sc.
Project Coordinator

FMZ/bk

*Attachments: 13-8588 - Winnipeg Beach Lagoon Upgrades EAP - Response to
Additional Information Request
Report from Public Information Session for the Town of Winnipeg
Beach Lagoon Upgrades, March 19, 2015*

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13-8588 – Winnipeg Beach Lagoon Upgrades EAP

Response to Additional Information Request

Question 1: *Moving towards continuous discharge has the potential to adversely affect Park users. The report comments that “the implementation of a UV disinfection to inactivate harmful pathogens such as fecal coliforms and regular effluent quality monitoring is expected to effectively mitigate this risk”. The report does not describe what measures will be taken to inform park users in the event monitoring indicates that water being discharged poses a risk to human health and safety.*

Response 1: Results of the proposed monitoring program will be reported to CWS through regular reporting. The proposed monitoring program is robust and sufficiently frequent to preclude discharges that could pose a risk to the public health. Should the monitoring results indicate that effluent quality levels do not meet the licensed effluent quality discharge limits, the system effluent can be recycled back into the lagoon cells. Effluent discharge will commence again once effluent quality meets the licensed discharge limits.

Question 2: *No comment is made in the report on what the proposed upgrades will mean in terms of odours from the lagoons. The Park campground is near the lagoons; please identify if it is anticipated that unpleasant odours will increase, decrease or stay the same, as a result of this work.*

Response 2: Unpleasant odours are associated with gasses formed as a resulting by-product of anaerobic conditions. These odours from the lagoon are expected to decrease as a result of the continuous aeration of the primary cell.

Question 3: *On page 3 of the functional design report attached to the EAP, conversion of the seasonal dwellings to permanent dwellings is indicated to result in increased permanent population of the town by 3, 630 residents. Please clarify how this can occur.*

Response 3: This was an error in the text that was not carried through in the calculations. The 3630 increase would occur if 100% of the seasonal dwellings were converted to permanent assuming 3 ppl/dwelling. Table 1 on page 4 shows the increased permanent population of 2826 which is the correct number as shown in the calculation below.

$$1011 + (0.5 * 1210) * 3 = 2826$$

Current permanent Pop. + 50% of seasonal dwellings * 3 ppl/dwelling = 2826 future permanent. Pop.

Question 4: *It is unclear how the BOD5 Loading and Total P Loading values presented in “Table 2: LAGOON UPGRADE DESIGN PARAMETERS” were calculated. Please provide details showing how the values were calculated.*

Response 4: BOD₅ and TP loading was calculated for summer and winter as follows:

Assume BOD loading per person per day = 0.085 kgBOD₅/cap/d

Assume TP loading per person per day = 0.0033kgTP/cap/d

Assume that during summer period the seasonal residents are generating 50% of the daily BOD and TP loading (consistent with flow estimations in Table 1). This assumption is valid and conservative because seasonal residents typically do not spend the summers full time at Winnipeg Beach, rather the population increases near the weekends and decreases during the week.

Assume that the bussed in students generate 1/3 of the daily TP and BOD loading, consistent with the flow assumptions shown in Table 1.

Assume the Hotel and Golf course developments will have full BOD and TP load generation for their respective populations as shown in Table 1

Provincial Park population is assumed to generate 8 m³/d during the summer months which is approximately equivalent to 29 people. TP and BOD loading are assumed to be proportionate to these flows.

Therefore:

$$\begin{aligned}\text{Summer BOD loading} &= 0.085 * \text{Permanent Res.} + 0.33 * 0.085 * \text{Bussed Students} \\ &+ 0.085 * \text{Golf Course Res.} + 0.085 * \text{Hotel Res.} + \\ &0.5 * 0.085 * \text{Seasonal Res.} + 0.085 * \text{Park Res.} \\ &= 0.085 * (2826) + 0.33 * 0.085 * (120) + 0.085 * 525 + \\ &0.085 * 20 + 0.5 * 0.085 * 1815 + 0.085 * 29 \\ &= 369 \text{ kg BOD}_5/\text{day}\end{aligned}$$

$$\begin{aligned}\text{Winter BOD loading} &= \text{Same as summer} - \text{Seasonal Res. and Park loads} \\ &= 369 - 0.5 * 0.085 * 1815 - 0.085 * 29 \\ &= 290 \text{ kg BOD}_5/\text{day}\end{aligned}$$

Total phosphorus loading was calculated in the same way except using the per capita P excretion rate of 0.0033 kg P/cap/d.

Summer TP loading = 14.3 kg/d

Winter TP loading = 11.3 kg/d

The winter BOD₅ and TP loadings shown in Table 2 in the functional design report are approximately 6% lower than the values calculated here due to rounding calculation error that was not introduced in the above calculations. These differences in loading will not affect the detailed design in any significant way that would alter the treatment scheme, facility size and/or land requirements.

13-8588 – Winnipeg Beach Lagoon Upgrades EAP Public Information Session Report

On March 19th, 2015, Dillon hosted a public information session for the Town of Winnipeg Beach community at the Winnipeg Beach Community Centre (32 Hamilton Street). The session, which ran from 7PM to 9PM, was organized in a drop-in format, where attendees were free to browse the display boards at their leisure. It also included a formal presentation by Francesco Zurzolo of the project team, who outlined the lagoon upgrades and led a question and answer session. Members of the project team (from Dillon and the Municipality) were on hand to answer questions and receive feedback. Display boards were set up around the room, outlining the project context and purpose, as well as high level technical details and project timelines. Attendees were encouraged to fill out exit surveys, which solicited feedback in regards to the lagoon upgrades.

The open house was well attended. A total of 32 people signed in over the session – however, attendance was likely higher (upwards of 35 to 40), as not all attendees chose to sign in. Sign-in sheets, completed exit surveys, and copies of the display boards are available upon request.

Fifteen attendees completed the exit survey, thirteen of which were year-round residents of Winnipeg Beach (two self-identified as seasonal residents of the Town). The comments were very supportive of the project, and can be summarized as follows:

- Supportive of project; meets future needs. Long overdue (most frequent comment)
- Good presentation; very informative
- Pleased that effluent will be cleaner
- Lake health is important; this project addresses that
- Ensure an open tender – competition will reduce costs; and help to ensure that costs don't balloon
- Old lagoons (cells 1 and 2) would make for a good hotel/resort site if decommissioned
- Monitoring will be important
- What happened to the local improvement district revenue? Did it go into general revenue?
- Concern over increased occurrences of heavy rainfall events, and the impact they may have on the system
- Wondered if seasonal residents were informed, and how potential opposition might affect the decision to move forward
- Future homes should have composting toilets and water reclamation