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Item No. 9.1.1
Regional Watershed Advisory Board
November 12, 2020

TO: Chair and Members of Regional Watershed Advisory Board

SUBMITTED BY: - Original Signed -

Kelly Denty, Director, Planning and Development

DATE: October 27, 2020

SUBJECT: **BRUNELLO WATER QUALITY MONITORING PROGRAM**

ORIGIN

Staff have received a request from Canadian International Capital Incorporated, developer of Brunello Estates, to amend the frequency of water quality testing within the area of Brunello Estates, under Development Agreement #00265, as amended.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter (HRM Charter), SNS 2008, c. 39, Part VIII, Planning and Development.

RECOMMENDATION

It is recommended that RWAB review and approve the proposed changes to the frequency of water quality testing as outlined in the report submitted by Stantec on behalf of Brunello Estates, dated March 28, 2020.

BACKGROUND

The Brunello Estates comprehensive development was originally approved in 2002 through a development agreement. The approved agreement enabled consideration for construction of an 18-hole golf course and residential development on lands located within the Timberlea/Lakeside/Beechville plan area. The golf course and associated residential subdivision are bordered by Highway 3 and Highway 103. The agreement has undergone a number of amendments since 2002 and was most recently amended in February 2019.

As part of the original development approval process, the former Halifax Watershed Advisory Board approved a Water Quality Monitoring Plan for Brunello Estates in 2011. This plan established a testing program to monitor and track impacts from the development on adjacent freshwater resources throughout the construction phases of the project. Construction of the initial residential phase began in 2011, with the golf course following in 2013. The course opened to the public in 2015 and subsequent phases of the residential component have followed.

Under the current approved plan, water quality monitoring is undertaken monthly except for the winter months (January - March), during which only one event occurs. The Developer has submitted a request to temporarily change the frequency of testing to three times per year (April, September, and December). This proposed change is intended to continue until further development on the lands of Brunello Estates will interact with one of the watercourses, as outlined in the May 2020 Stantec report (Attachment 1).

ENABLING POLICY

Section 2.7.5 of the Brunello Development Agreement outlines the requirement for the developer to carry out water quality monitoring. The section is as follows:

> *2.7.5 The Developer agrees to undertake, at its own expense, ongoing water quality monitoring of waters leaving the Lands, particularly in the watersheds of Nine Mile River, Otter Lake, and Governors Lake, to be determined as part of the Stormwater Management Plan. The water quality monitoring program shall be subject to approval by the Halifax/Halifax County Watershed Advisory Board and shall describe items such as, but not limited to, the location of testing, frequency of testing, materials/chemicals to be tested, performance standards, analysis methodology and interpretation of results, and reporting schedule. Certification of compliance with the approved program by a Qualified Person shall be provided, and areas of non- compliance shall be identified and reasons for any such non-compliance. Should it be determined at any time during the monitoring program that quality of water leaving the site is unsatisfactory, mitigatory measures shall be immediately implemented and the costs of such measures shall be the responsibility of the Developer.*

DISCUSSION

The developer proposes to temporarily reduce the frequency of water monitoring events because the area being monitored is not presently undergoing residential development. The proposed reduction in testing frequency is to take effect only until such time as residential development resumes within the watersheds of the monitored streams, at which time testing frequency will revert to the original schedule. The request recognizes that the proposed change, if approved, would result in less water quality data (down from 10 monitoring events annually to three). This would capture less variation in water quality over the affected period. However, to capture the full range of variability in the values of the parameters under study (principally Total Phosphorus and E. coli), the Developer has proposed to conduct the revised monitoring

program during the times when the highest and lowest values have been historically recorded over the lifespan of the monitoring conducted to date.

If the proposal is approved, there is a risk that water quality values in the subject streams could vary from historic periods, and that the timing of the maximum and minimums may not coincide with the three months proposed for monitoring events. However, given the six-year period of consistent monitoring of these streams, and the relatively little change in values or seasonality demonstrated over that period as documented by Stantec, staff consider that risk to be relatively low.

Overall, the environmental risks associated with the proposed revised schedule are rated low. Correspondingly, the environmental benefits of continuing the current monitoring schedule in the absence of ongoing residential development activity are considered to be relatively low.

Given the intention to return to the original monitoring frequency upon the resumption of residential development, staff recommend approval of the proposed revised monitoring program.

FINANCIAL IMPLICATIONS

There are no financial implications to the Municipality associated with this staff report regarding the Developer's proposal.

RISK CONSIDERATION

There are no significant risks associated with the recommendations in this report. The risks considered rate Low. To reach this conclusion, consideration was given to environmental risks.

COMMUNITY ENGAGEMENT

There are no requirements for community engagement prior to the consideration of altered water quality monitoring by the advisory board.

ENVIRONMENTAL IMPLICATIONS

The purpose of conducting water quality monitoring in Brunello Estates is to identify and assess the impacts of development activities on the affected streams, not to document natural environmental variations in water quality conditions in the absence of development activities. Consequently, there are no perceived environmental implications of this report.

ALTERNATIVES

The Regional Watersheds Advisory Board may choose not to approve the change in frequency of water quality monitoring, thereby requiring the Developer to maintain the current monitoring schedule without interruption. Staff do not recommend this alternative, for the reasons outlined in this report.

ATTACHMENTS

Attachment A Proposed Alteration of Water Quality Monitoring Program for Brunello Estates

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Matthew Conlin, Planner I, 902.490.4843
Cameron Deacoff, Environmental Performance Officer. 902.490.1926

Stantec

Memo

To:	Andrew Giles Brunello Estates	From:	Matt Steeves Stantec Consulting Limited
File:	121415130	Date:	May 28, 2020

Reference: Request for Rationale for Reduction of the Water Quality Monitoring Program Scope

Based on the water quality results to date The Links at Brunello is requesting an amendment to the development specific Water Quality Monitoring Plan.

The Links at Brunello water quality monitoring plan developed in 2011 was based on information contained within the "Halifax Regional Municipality's Water Quality Monitoring Functional Plan" (Stantec 2009). The Water Quality Monitoring Functional Plan (WQMFP) includes a generic development-oriented monitoring program, which focused on short-term, development-specific monitoring activities occurring over the course of construction. This development-oriented program is linked to the HRM-wide program such that monitoring results are transferrable and inform the broader program.

The Links at Brunello Water Quality Monitoring Plan developed in 2011 was based on a concept plan and construction sequencing which started with the construction of the first phase of housing development and ancillary buildings. This was followed by construction of the golf course in 2013 and 2014 with the opening in June 2015. Following the construction of the golf course residential development was planned in a phased approach, The Links at Brunello Water Quality Monitoring Plan was aligned with that original phased approach. The actual sequence of phased development has been delayed when compared to what was identified in original Water Quality Monitoring Plan and as a result, watercourses are being monitored for longer period than anticipated.

As shown in Table 1 the construction of The Links at Brunello golf course interacted with watercourses WC-1, WC-6, WC-7 WC-11 and WC-13 as such were all monitored in 2013 and 2014. Following the opening of the golf course in June 2015 monitoring at these locations ceased. Watercourses WC-1, WC-7 and WC-13 (Figure 1) were selected to be monitored until residential construction occurred within the drainage area of other watercourses on the Property, these three watercourses were selected as they represent drainage into the three sub-watersheds occupied by the Development (Governor Lake, Otter Lake, and Nine Mile River). These three watercourses have been monitored since 2015 to assess whether residential development on-site is impacting water quality.

Table 1 Watercourses Monitored to Date

Watercourse	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
WC-1	Baseline									
WC-4	Baseline									
WC-6	Baseline									
WC-7	Baseline									
WC-11	Baseline									
WC-13	Baseline									

Reference: Request for Rationale for Reduction of the Water Quality Monitoring Program Scope

Stantec has explored the water quality results collected to date which represent those most commonly affected by residential construction (Total Phosphorous and Total Suspended Solids (TSS), and to a lesser extent Turbidity, and *E.coli*) and the results indicate a higher variability during period of golf course construction, followed by a decreasing trend with less variability in the results (Attached, Figures 2 to 5). Periodic elevated concentrations had occurred during the monitoring period, specifically elevated Total Phosphorous concentrations, these generally occur in Spring and Fall and are likely associated with the spring runoff or intense rainfall events which frequently occur in the Fall. Though less frequent, periodically elevated *E.coli* counts occur during the summer months (July and August), this is unlikely related to the Development and more likely natural sources and elevated water temperatures contributing to increases in *E.coli* concentrations.

Based on the results to date Stantec is recommending an amendment to the development specific Water Quality Monitoring Plan, as the results indicate concentrations of key parameters are relatively stable with a slight decreasing trend observed since the completion of golf course construction. The recommendation is to decrease the frequency of monitoring from monthly between March and December to three times per year. The parameters monitored would include those parameters listed in Group 1 of the original Water Quality Monitoring Plan:

- *E. coli*
- Total Phosphorous
- Total Suspended Solids
- Turbidity
- Colour

With respect to timing of the monitoring, the data shows total Phosphorous results are the most variable parameter explored have the most seasonal variability, though some commonalities are noted between years, most notably the highest observed concentrations tend to occur in September. This coincides with the TSS data which shows the highest observed concentrations occur in September.

The monthly average concentrations were calculated for Total Phosphorous and TSS based on all years of data. Average total phosphorous concentrations at WC-1, WC-7 and WC-13 are highest in September and July, with the lowest average concentrations occurring in December and March. Similarly, TSS concentrations peak in September and July, with lowest average concentrations in April and October. Other than occasional peaks during the summer months temporal patterns were not immediately evident in turbidity or *E.coli*.

Based on this Stantec is recommending the Group 1 parameters listed above be monitored in April, September, and December. These parameters and timing should capture a range of conditions over the year and provide results representative of the water leaving the site.

If acceptable, this modified water quality monitoring program would continue until development progresses to a phase which would directly interact with one of the watercourses on-site as shown on Figure 1. Stantec is recommending that once construction begins within the drainage area of a watercourse as shown on the attached Concept Plan, the water quality monitoring program would revert to the original plan, with monitoring occurring monthly from March to December.

Reference: **Request for Rationale for Reduction of the Water Quality Monitoring Program Scope**

CLOSURE

This memorandum has been prepared for the sole benefit of the Links at Brunello. This memorandum may not be used by any other person or entity without the express written consent of Stantec Consulting Ltd., and the Links at Brunello.

Any use that a third party makes of this memorandum, or any reliance on decisions made based on it, are the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made, or actions taken, based on this memorandum.

The information and conclusions contained in this memorandum are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. Conclusions and recommendations presented in this memorandum should not be construed as legal advice.

The conclusions presented in this memorandum represent the best technical judgment of Stantec Consulting Ltd. based on the data obtained from the work. If any conditions become apparent that differ from our understanding of conditions as presented in this memorandum, we request that we be notified immediately to reassess the conclusions provided herein.

Stantec Consulting Ltd.

[redacted] Digitally signed by Matt Steeves
Date: 2020.05.28 11:28:33 -03'00'

Matthew Steeves
Associate Environmental Scientist
Phone: [redacted]
Fax: [redacted]
[redacted]

Attachment: Figure 1 – Site Map
Figures 2 to 5 – Water Quality Trendlines

AUTHOR: C.Shupe	DATE: February 1, 2010	BRUNELLO ESTATES	FIGURE NO: Figure 1
APPROVED: H. Aubrey	SCALE: 1:10,000	**Sample Locations for Brunello Estates Water Quality Monitoring Plan**	Stantec
Brunello Estates	COORDINATES IN: UTM NAD 83 ZONE 20		

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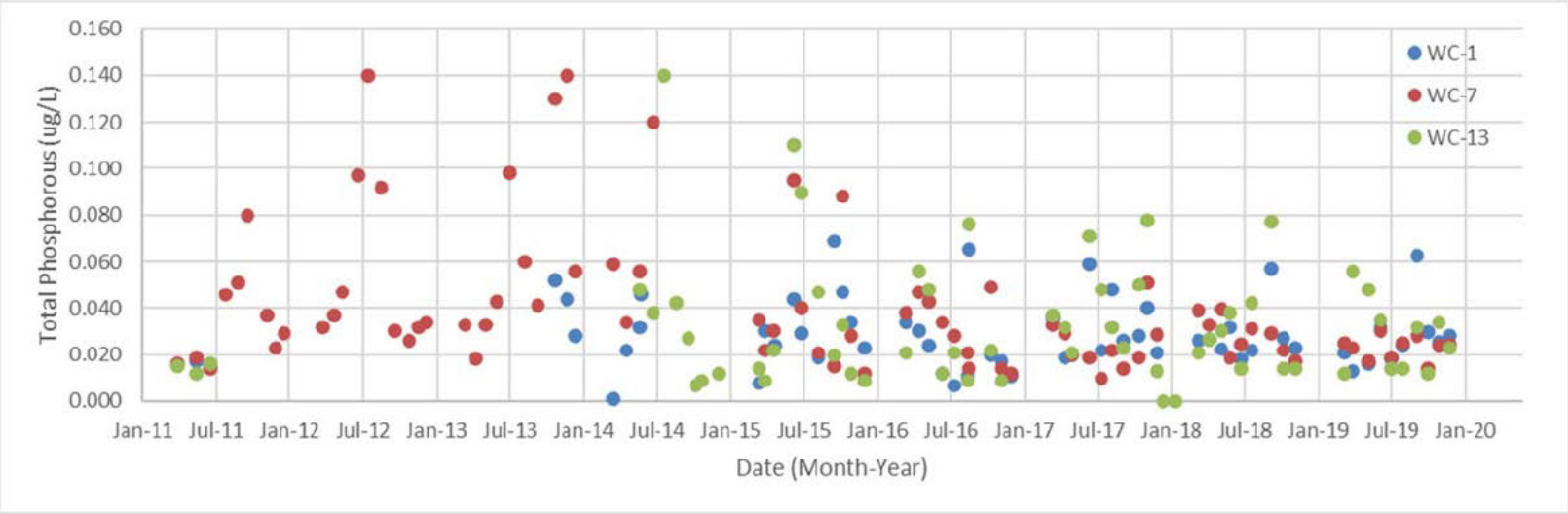

Figure 2 Monthly Total Phosphorous Concentrations from March 2011 to December 2019

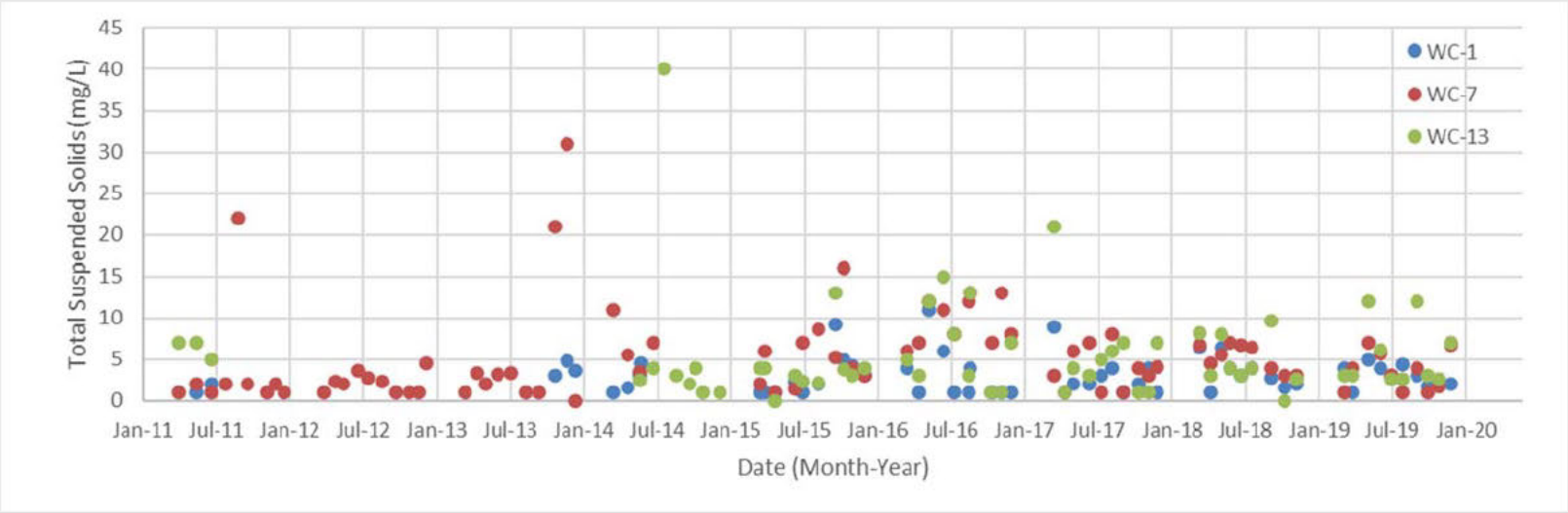

Figure 3 Monthly Total Suspended Solids Concentrations from March 2011 to December 2019

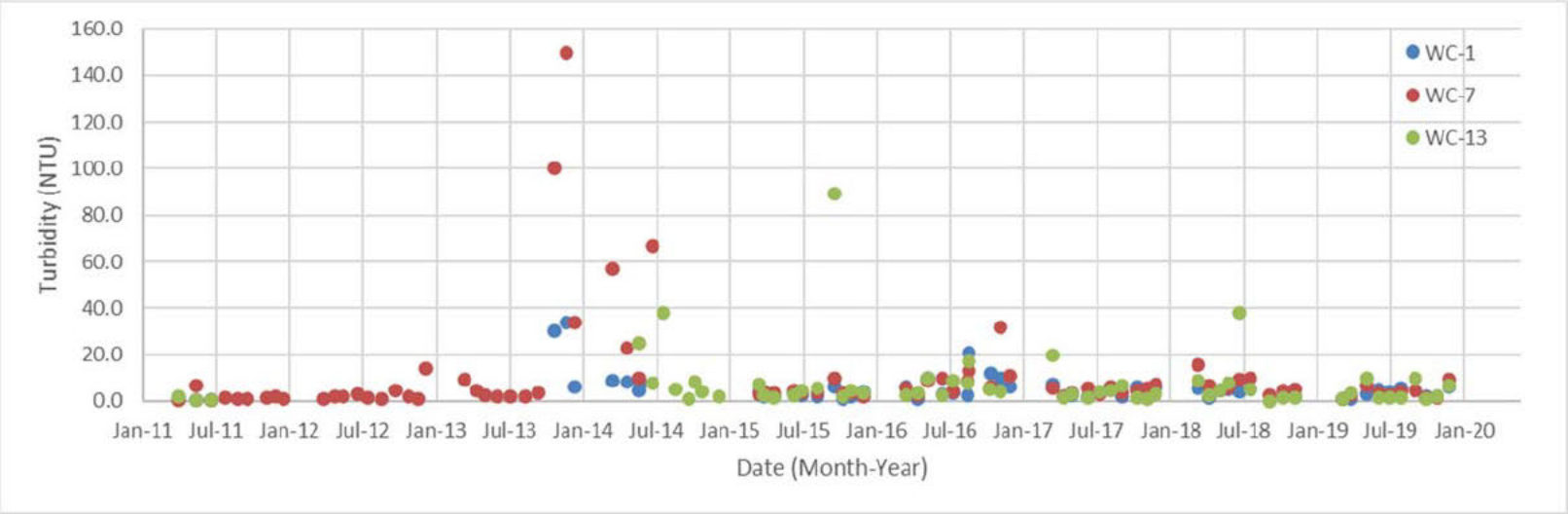

Figure 4 Monthly Turbidity Concentrations from March 2011 to December 2019

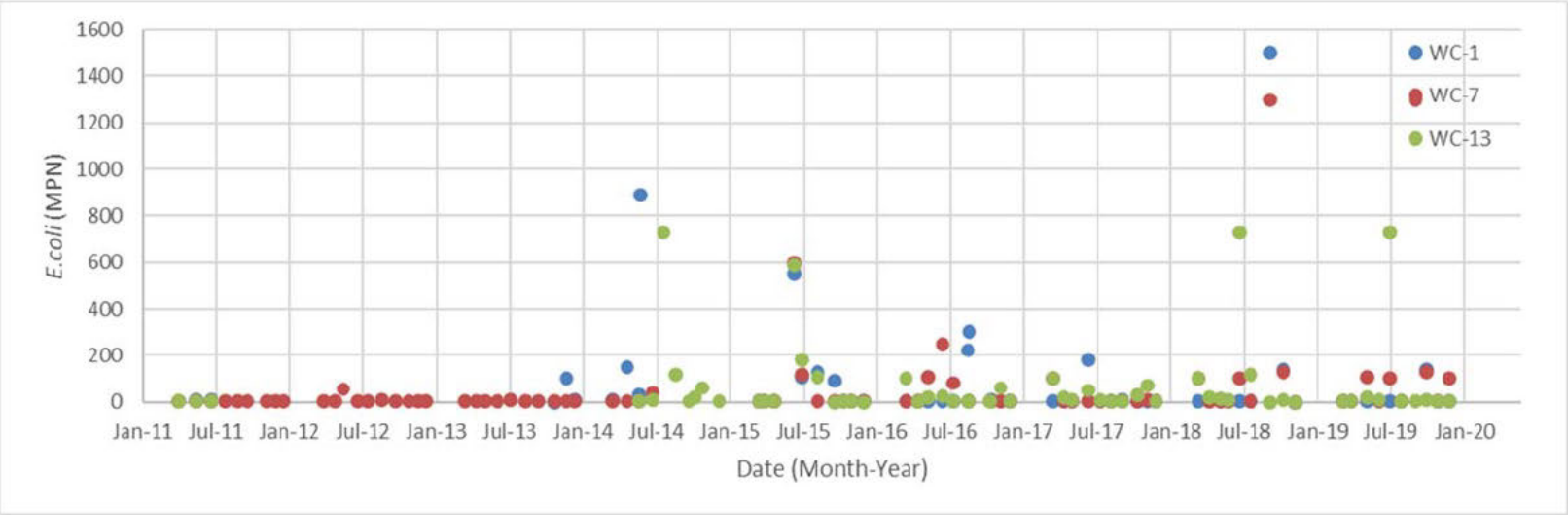

Figure 5 Monthly *E.coli* Concentrations from March 2011 to December 2019