Case Nos. 09-031 and 09-032

**ENVIRONMENTAL REVIEW TRIBUNAL**

**IN THE MATTER OF** sections 38 to 48 of the *Environmental Bill of Rights, 1993*, S.O. 1993, c. 28, as amended, and section 34 of the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

**AND IN THE MATTER OF** an Application by the Sierra Club of Canada and the Greenspace Alliance of Canada's Capital for leave to appeal the decision of the Director under section 34 of the *Ontario Water Resources Act*, to issue Permit to Take Water No. 8130-7HNPVW dated April 27, 2009, to Findlay Creek Properties Ltd. and 1374537 Ontario Limited for the purposes of construction dewatering at Lot 18, 19 & 20, Concession IV, former Township of Gloucester, Ottawa, Ontario.

**SIERRA CLUB OF CANADA**
**AND**
**GREENSPACE ALLIANCE OF CANADA'S CAPITAL**

- and –

**DIRECTOR, MINISTRY OF THE ENVIRONMENT**

# AFFIDAVIT OF DANA CRUIKSHANK
# SURFACE WATER SPECIALIST, WATER RESOURCES ASSESSMENT UNIT
# MINISTRY OF THE ENVIRONMENT

(Sworn June 5, 2009)

I, **Dana Cruikshank**, of the City of Kingston, in the Province of Ontario, AFFIRM AND SAY AS FOLLOWS:

1. I have been employed as a Surface Water Specialist in the Water Resources Unit, Technical Support Section of Eastern Region of the Ministry of Environment ("MOE" or "the Ministry") since July 3, 2000. Prior to working for the MOE I was employed for 17 years by the Federal Department of Fisheries & Oceans ("DFO") as a Field Services Manager for an Ecosystem Approach Aquatic Research group known as the Experimental Lakes Area. I was more recently (1998 and1999) employed by DFO as a Fish Habitat Biologist. I also started and operated by own environmental consulting business (Shaka

Environmental) for approximately 15 months before joining the MOE in Kingston.

2. My current duties include reviewing technical reports and evaluating potential impacts to surface water resources as a result of a wide range of activities such as landfill disposal sites, industrial sites, dredging of watercourses, large sub-surface septic systems, rehabilitation projects and activities requiring reviews of terms of references for/and environmental assessments. My duties also include the review of applications for Permit to Take Water and reviewing applications and making recommendations as requested for Section 53 (OWRA Sewage Works Approval). I am also the regional coordinator for our lake trout lake water quality monitoring program.

3. My education includes a B.Sc. Honours degree in Biology from Queen's University. My education and professional experience is described in detail in my curriculum vitae which is attached to my affidavit as Exhibit 1.

4. I have personal knowledge of the matters to which I depose in this affidavit. Where I do not have personal knowledge, I have indicated the source of my information and I believe such information to be true.

**Background to my involvement in the Findlay Creek Village Development**

5. I first become involved with reviewing surface water issues at the Findlay Creek Village site on November 02, 2007 when I accompanied the Director, Peter Taylor, and the groundwater reviewer, Bob Putzlocher to conduct a site visit. An overview of the site is set out in figure MP-1, which shows Findlay Creek, the provincially significant Leitrim wetland area to south, the berm that was constructed between most of Findlay Creek and the wetland, the location of existing housing and planned future housing to the north. Figure MP-1 is set out in the Respondents' Book of Documents at Tab 8.

6. Findlay Creek is defined as a warm-cool-cold water fishery. The area east of Bank Street has been stocked with brown trout in the past. The cool-cold water fishery is defined as east of Bank St. Other parts of the creek have water

temperatures and fish species that by definition would classify it as a warm-water fishery.

7. A feature known as the east-west ditch is shown on the left side of Figure MP-1. This ditch conveys water that originates on the west side of Albion Road and enters the east-west ditch from a culvert under Albion Road. The east-west ditch transports the water from this point to Findlay Creek.

8. The proponent has been creating an engineered creek that runs south along the east side of Albion Road then east along the northern border of the Leitrim Wetland to become an extension of Findlay Creek, ending at the location marked as A on figure MP-1. This work is known as phase I of the Findlay Creek Extension. The work is permitted by authorization 5250-100 issued by the DFO which is set out at Tab 25 of the Respondents' Book of Documents, including the extension of the expiry date until December 31, 2010. The authorization requires a fish habitat compensation project that extends from Albion Rd to Bank St. to replace and enhance the current flow path.

9. The Ministry received an application from Findlay Creek Properties Ltd. and 1374537 Ontario Ltd ("the proponent") for a Permit to Take Water ("PTTW" or "permit") on December 21, 2007 for the dewatering of the Findlay Creek Extension (FCE-P1) Phase 1 to allow for construction of fish compensation measures in Phase 1 of the Creek relocation. Water from the FCE-P1 was to be pumped to two temporary sedimentation ponds before being discharged to the east-west ditch. Numerous water quality parameters were monitored. This PTTW underwent several amendments as water was later discharged to the stormwater pond system instead of the east-west ditch. Review of this application provided me with a good background of the history of this development. It is my understanding that the work on FCE-P1 is nearing completion.

**The Application**

10. The application for the PTTW that is the subject of this review ("the future long-term permit") was received from Findlay Creek Properties Ltd. and 1374537 Ontario Limited by the Ministry of the Environment on July 14, 2008. The Permit was required to authorize temporary water takings for the purposes of installing water and sewer servicing for all future stages of Findlay Creek Village subdivision on Lots 19 and 20, Concession V, former Township of Gloucester, now City of Ottawa. The application is set out at Tab 5 of the Respondents' Book of Documents.

11. On August 29, 2008 Golder Associates (Golder) on behalf of the proponent submitted a letter informing the Director that two additional surface water sources would be added to the future long-term permit. This was followed by another letter providing additional details and a formally amended application dated September 12, 2008. These two letters are set out at Tabs 11 and 12 of the Respondents' Book of Documents.

12. The proponent was amending the application to apply for a permit for two surface water takings. The first was for the diversion of water in order to complete Phase 2 of the Findlay Creek Extension (FCE-P2). The portion of Findlay Creek flowing between points A and C on figure MP-1 is currently a by-pass ditch that had been constructed. The proponent is still required to provide fish habitat compensation measures by DFO Authorization 5250-100 in this stretch of the creek which includes planting appropriate vegetation and engineered fish habitat features. The vegetation needs to be planted in dry conditions to permit it to establish root systems that will allow the vegetation to take hold so it doesn't wash away when flows are restored to this section of Findlay Creek. The proponent is therefore proposing to divert most of the flow of Findlay Creek around the FCE-P2 construction area, the stretch marked from points A to C on figure MP-1 which is a distance of almost 800 metres, via a pipe which will discharge the flow downstream of the construction area at point C.

13. The second surface water taking is for construction dewatering to allow drainage

ditch modifications that will allow surface water drainage from the northern part of the development to be conveyed into the new realigned North-South Ditch. This ditch discharges to Findlay Creek. The proponent is proposing to divert the water around the new ditch construction and convey it by pumps and/or ditches to the existing stormwater sewer system.

**Information collected as part of my technical review**

14. On October 20th, 2008, I determined that I could not complete my review of the new surface water takings without additional information being provided. The Director issued a letter dated November 10, 2008 to the applicant requesting the additional information. A copy of this letter is set at Tab 15 of the Respondents' Book of Documents.

15. The proponent provided a response to the request for further information on December 16, 2008 which was copied to Ms. Sarah Nugent, Water Resources Coordinator for MNR Kemptville who coordinated MNR's comments around fisheries and wetland issues. The requested additional information and responses provided some information directly related to the surface water component of the application but also provided more details on historical monitoring and decisions that resulted in the current development on the site. A copy of the December 16 letter from the proponent to MOE is set out in the Respondents' Book of Documents at Tab 16.

16. I began a more detailed review of the application during the week of January 26th, and initially concluded that:

    (a) the proposed surface water takings in the application were simple diversions. In the case of FCE-P2 the diversion simply involved transporting flows in the creek through a pipe and discharging it further downstream. In the case of the North-South swale, there were usually no significant flows in the summer and therefore ponded water in the swale could be diverted to the stormwater pond. If these takings had been applied for separately from the groundwater takings, they would have been treated as a category 2 surface water taking under the PTTW Manual.

    b) the wetland core behind the berm has been historically affected by drainage activities

carried out prior to the berm being installed. This was based on my observations of the remnants of several flow channels that can be seen when walking on top of the berm. This indicated that the hydrology of the area was likely changed with the construction of the berm and therefore historical baseflow and runoff flow towards Findlay Creek had been altered.

17. On February 23rd, 2009 I attended an inter-agency meeting involving myself, Bob Putzlocher and Peter Taylor of MOE, staff from DFO, the Ministry of Natural Resources (MNR), and South Nation Conservation Authority (SNCA), along with representatives of the proponent and the proponent's consultant, Golder Associates. The main focus of the meeting with respect to surface water was what was the appropriate amount of water to be diverted around the FCE-P2 during its construction.

18. Most diversions use a temporary constructed channel that diverts all the flow around the construction area so that all the flow immediately downstream is similar to that of the upstream area. In this case there was no room to construct a temporary channel and to access the work area so a diversion pipe was determined to be the most feasible solution.

19. Golder proposed to divert up to 40 L/s on a consistent basis from location A of Figure MP-1 through the diversion pipe to the discharge point at Location C which is downstream. 40 L/s is the baseflow calculation made by IBI Group, another consultant to the proponent. Flows in excess of 40 L/s were to be diverted to the stormwater management pond (SWMP) as there is an inlet to the stormwater collection system that leads to the SWMP not far from point A on figure MP-1. Water from the SWMP discharges to Findlay Creek almost two kilometres downstream of the construction work on FCE-P2. Most of the time, there would be little need for the diversion of water to the stormwater management pond. The only time large diversions are expected is during infrequent storm events.

20. However, I had concerns with the proposed 40 L/s diversion. A key principle in the April 2005 PTTW manual is that a diversion should maintain similar flows and water quality in the downstream reaches of the Creek so that the natural functions could be maintained.

Since 40 L/s only represented baseflow, the diversion would likely result in less water being discharged at the end of the diversion during periods of high flow, such as during storms and wet periods.

21. The manual does indicate that a reduction in downstream flows may be considered acceptable if the proposed diversion flow rates would not have any adverse impacts on the downstream aquatic ecosystems. This would require concurrence from MNR and DFO. The proponent had not provided any such evidence to justify a reduction. I therefore requested further information, including the data establishing the upstream baseflow and evidence justifying the reduction in downstream flow if that was required.

22. On February 25th another draft monitoring plan was received from Golder that discussed the options and made a new proposal of diverting up to 60 L/s of water to the downstream discharge point instead of 40 L/s. This still would not capture all the flows during storm events. However, Golder argued that it was impractical to have huge pumps and standby generators (in case of power outages) to pump large volumes of water resulting from unpredictable storm events, and that in any event, the stormwater would likely overwhelm the coffer dams before the pumps could respond.

23. On March 04, 2009 I received the information on how the baseflow calculations were made along with graphical data.

24. On March 9, 2009 I attended a meeting at the MOE Offices in Ottawa that was attended by several representatives of Friends of Leitrim Wetland and the Greenspace Alliance of Canada's Capital and Linda McCaffery (lawyer from Ecojustice) along with representatives of DFO, MNR, SNCA and Golder. The purpose of the meeting was to review a proposed monitoring plan that had been developed and to discuss additional proposals or concerns raised by the Friends of Leitrim Wetland group. With respect to surface water, their comments mostly focused on how the proposed baseflow number was calculated and why no timing restrictions were being considered as conditions in the permit.

25. I indicated that the Ministry's position was that all the water in the stream would have to be diverted to be consistent with principle in the PTTW Manual that upstream flows should equal downstream flow. I did indicate that the Ministry would only consider the 40 L/s or 60 L/s proposal if the proponent could provide additional information from MNR and DFO or other technical data that would indicate that 40L/s or 60 L/s was an acceptable baseflow calculation (on the basis that they were the two agencies responsible for fisheries and fish habitat) to protect the natural functions of the creek. Secondly, fishery timing restrictions were already built in to the DFO Authorization which was driving the work schedule and therefore in my opinion were not required in the PTTW.

26. On March 10th, 2009 I was provided with further information from Ecojustice on behalf of the Greenspace Alliance for my consideration as part of the technical review.

27. In order to ensure that I reviewed all available water quality and discharge data, on March 13th, 2009, I requested from Paul Smolkin of Golder that I receive all the historical water quality and discharge flow data for Findlay Creek and the SWMP.

28. I later determined that I required the actual daily flows measured in 2005 to complete my review, which I was able to access on March 30, 2009 as well as some historical water quality data from IBI's website.

29. The daily flow data from 2005 was an incredibly huge file as it contained about 95 data points (water level measurement), with each having data for every 24 hour period in 2005. The data was not summarized in any manner. I therefore personally calculated average daily flows and standard deviations for July, August and September (the months in which the work is most likely to conducted in FCE-P2). A chart I created setting out the average daily flows is set out at Tab 26 of the Respondents' Book of Documents.

30. On April 7, 2009, the proponent submitted a new version of the proposed future stages

PTTW monitoring program that had been revised to reflect some of the comments received on the earlier draft.

31. On April 17th, 2009 I completed my technical review and provided my recommendations to the Director as to the surface water conditions that should be included in the future long-term permit.

**The Conclusions of My Technical Review**

32. It was my opinion that, with respect to surface water, it was acceptable and consistent with MOE policy to issue the permit as long as certain conditions were imposed.

FCE-Phase 2 Diversion

33. By the time I commenced my final technical review, I was still of the opinion that the diversion being proposed for the construction of the FCE-P2 was a simple diversion.

34. The main issue of concern was the quantity of water being diverted. The PTTW Manual indicates that all upstream flow should be diverted to the downstream point of the diversion. However, the manual further states that alternative flows may be accepted instead of requesting all the flow be diverted if there is data to support the proposed flow number and the responsible agencies for fish habitat (DFO) and fish populations (MNR) agree. This is set out on page 14-15 of the Manual which is set out at Tab 4 of the Respondents' Book of Documents.

35. In this case, there were two unique factors justifying consideration of a reduction in downstream flows. First, there was no room to construct a temporary channel large enough to divert all the flows from the upstream part of the creek and access the works area so a diversion pipe was determined to be the most feasible solution. Second, large flows will occur from time to time during storm events. It is logistically very difficult to have a pump large enough on stand-by to convey large storm events (such as a 1 in 2yr storm) that statistically are unlikely to occur. The pump would have to be huge and

capable of handling intense flows very quickly. An on-site generator would also be required for a larger pump in case of power outages as well as an operator. It is also unlikely that the pump would respond fast enough to the flash rise in water from a severe storm event before the check dam was breached and flooding waters destroyed the fish compensation works as well as causing significant erosion and transport of sediment downstream which would result in damaged spawning areas and cause breathing problems for fish as silt plugged their gills.

36. All three agencies, MNR, MOE and DFO all agreed in principle that that upstream flows should equal downstream flows, but also agreed that it is not reasonable to maintain a large pump capable of pumping flows from a 2yr storm event. Therefore, some diversion of flows is reasonable, as waters breaching the construction area would do serious harm, but a flow rate needed to be determined that was protective of the natural functions of the stream and logistically sound.

37. Baseflow is the portion of streamflow that comes from groundwater and not runoff. It is the usual, reliable, background flow in a stream that allows the stream to maintain baseflow during dry periods. In the case of Findlay Creek, the source is groundwater recharge from within the wetland. Since the construction of the berm the baseflow of Findlay Creek is almost all from the wetland area west of Albion Rd. and flows currently through a culvert under Albion Rd into the east-west Ditch and to Findlay Creek proper.

38. Based on information provided by IBI there is little baseflow contribution from the North-South Swale other than during the spring freshet. Since the berm prevents most flows from the south and the North-South Swale to the north is extremely intermittent during the summer period, the flow coming from the west side of Albion Rd. is likely an excellent representative of the majority of flows that will be encountered at Location A on Figure MP-1.

39. The baseflow of 40 L/s was determined in 2005 by IBI group. The 2005 data was recorded after construction of the berm around the core wetland and therefore is representative of

conditions found today at Findlay Creek Village. IBI determined this amount based on flow measurements at Albion Rd. taken in 2005 which represents upstream flows from the wetland on the west side of Albion Rd. to Findlay Creek. The 40 L/s flow rate is considered conservative as baseflow at Albion Rd. in 2005 was measured at times as low as 20 L/s but that flows of 40 L/s were found frequently after rain events. Therefore, 40 L/s was chosen as the baseflow rate.

40. The baseflow of 40L/s was the flow rate approved by DFO in their approval of the design of the fish habitat compensation features in the Findlay Creek extension.

41. Based on my review and analysis of the flow data for 2005, I determined that most significant rain events triggered flows greater than 60 L/s but they last generally only for a few hours. A summary of the work in chart format showing the 2005 average daily flows are set out in the document at Tab 26 of the Respondents' Book of Documents, at pages 2-3. The red line in the document represents the proposed 60 L/s diversion rate. The result is that from July 01 to September 30, 85% of the average daily flows in Findlay Creek should be captured by the proposed diversion rate of 60 L/s.

42. From this work, I was satisfied that the proposed diversion flow rate of 60 L/s was adequate flow during the low flow period that the construction work was supposed to occur in. I shared my findings with Anne Bendig, a biologist at MNR, and Georgina Williston, a habitat biologist at DFO. Both Ms. Bendig and Ms. Williston confirmed that they agreed with my assessment. The emails of Ms. Bendig and Ms. Williston are set out at Tab 27 of the Respondents' Book of Documents.

43. In order to confirm my assessment, I further obtained the precipitation records for June-September for the Ottawa Airport station (which is located close to the site) from the Environment Canada website. Monthly total precipitation as well as total summer precipitation values were calculated and ranked. 2005 (when the flow measurements were conducted) was the second wettest year between 2000 and

2008. This would indicate that flows measured in 2005 were likely higher than those that would have been encountered in other years, reinforcing the conservative nature of the 60 L/s diversion flow rate.

44. I am therefore confident that based on a statistical analysis of flows and precipitation that the proposed 60 L/s rate would capture and discharge at the end of the diversion pipe up to 85% of the average daily flow in Findlay Creek and that this flow rate is protective of the ecosystem downstream of the discharge point of the diversion around FCE-P2.

45. The diversion rate of 60 litres per second equates to a daily rate of 5,184,000 litres of water per day being diverted through the pipe around the FCE-P2 construction site.

46. Any flows in excess of 60 L/s will be diverted to the stormwater collection system which drains to the stormwater management pond where it will eventually discharge to Findlay Creek further downstream of the diversion project. These excess flows represent local precipitation events that can range from a few hours to a day. The maximum taking took into consideration the flows incurred during a one in two year storm event. During such a storm, it was estimated that the flow in Findlay Creek at the diversion point would be 2,240 litres per second. This translates into a maximum of 193,536,000 litres per day which would be diverted away from the Findlay Creek extension to the storm sewer during this major storm event should it occur.

47. While this appears to be an extremely large water taking, it must be kept in mind that this simply represents the diversion of storm water from point A on Figure MP-1 to the storm water management pond (point D on Figure MP-1) where it is returned to Findlay Creek where it would have flowed to in any event. It constitutes diverting the water from perhaps a 2 kilometre stretch of the creek. There is no consumptive use of the water.

48. Due to the unpredictability of storm events, the maximum allowable rate must be authorized for any given day. The diversion of flows in excess of 60 L/s to the stormwater pond will occur only infrequently, approximately 15 % of the time based on the 2005 data. This means that for this permit if precipitation amounts similar to 2005 occurred one could expect to have to divert water in excess of 60L/s which is equivalent to 5,184,000 litres per day approximately 14 times during the July 1 to September 30 period. The maximum daily taking in Table A of 198,720,000 takes into account these localized storm events as well as the unpredictable one in two year storm event which is unlikely to occur during this time period because statistically the one in two year storm event is based on an occurrence over 24 months and this work will primarily be conducted over a 3 month period which reduces the time period for such a storm to occur.

49. The Stormwater System has been previously approved under section 53 of the OWRA and is engineered to handle storm water in an environmentally sound manner.

50. A second issue with the FCE-P2 diversion is water quality. The main parameters of concern with cool-cold water systems are temperature, TSS and dissolved oxygen. It is Golder's opinion that water being diverted in the pipe will be in the pipe for only a few seconds and therefore there should be no change in temperature. The intake line will be positioned and screened so no fish are removed and sediment is minimally disrupted. At the discharge location (Location C) engineered works will prevent additional erosion in the stream from the discharge of water from the pipe. Therefore in the consultant's opinion the TSS concentrations upstream should be the same as those downstream. Finally dissolved oxygen should not be an issue and is likely to be enhanced as the water swirls in the pipe and is mixed at the discharge end. I was satisfied that the water quality will be protected if the proper engineering precautions are employed as proposed.

51. It is also noted that additional flow and what actually enhances the creek as a cool-

cold water creek is incurred from springs along Bank St. which is located downstream of the receiving point (Location C, Figure MP-1) of the diversion. As these springs are downstream from the construction, they are not affected by it.

52. To ensure that water quality is maintained in Findlay Creek as a result of the diversion, I established 4 surface water locations (Condition 5.6 of the PTTW). SW1 located at Albion Rd. will measure the water quality entering Findlay Creek Phase 1 (FCE-P1). SW2 is located just upstream of the taking area, SW3 is located just downstream of the discharge area and measures water quality leaving downstream of the construction works. SW4 is located in the SWMP outlet and monitors water that is discharged from the SWMP which receives water from the FCE-P2 diversion, North-South swale or from groundwater takings is the water quality that the SWMP was designed to achieve. An additional station called SW5 will measure the water temperature downstream of the outlet to ensure that water from the diversion and SWMP is of the appropriate temperature to support cool-coldwater fish species in Findlay Creek. Comparisons of downstream water quality to upstream water quality within specific limits are to be made on a regular basis. If exceedances of these limits are incurred then mitigation measures are to be put in place and the sampling frequency increased to ensure the standards are met.

53. These monitoring conditions were discussed with DFO, MNR and the SNCA and approved by the other agencies.

54. I am confident that compliance with the monitoring conditions will result in there being no impact to downstream water quality or impacts to the natural functions of the stream during this temporary taking period.

<u>North-South Swale Dewatering</u>

55. The proponent has proposed that any water encountered from the realignment of

the North-South Swale and ditch modifications of drainage ditches to the swale will be pumped or diverted to the stormwater pond (SWMP). The N-S swale currently drains stormwater from the northern part of the development.

56. Golder has indicated that there rarely have been flows in the swale especially during the summer low flow period when this work is scheduled to be done. Previous flow monitoring indicates that the only baseflow contribution to Findlay Creek from the North end of the property is during the spring period. No work will be conducted on the North-South Swale during this time frame. Therefore since the flow contribution to Findlay Creek from the north part of the property is minimal during the proposed construction period, water from the north end can be diverted to the storm sewer system without any major impact to flows in Findlay Creek.

Water taking for ponded water

57. The third surface water source is Source 4 in Table A of the PTTW. This source was not included in Table A of the amended application package and therefore was not included in my original technical review. Subsequently when this source was added to Table A I advised the Director of the following. The taking authorized as described to me by Golder was for dewatering low lying areas that may fill with water from precipitation events and runoff. All water pumped from theses area would go to the storm sewer system. As the ponded water in low lying areas do not contribute to the flows in the creek and the ponded water is probably high in sediment concentrations, I have no concerns with it being pumped to the SWMP which is designed to attenuate suspended sediment.

58. I have summarized my technical comments of the surface water takings as they relate to the considerations set out in O. Reg 387/04 as follows:

Natural Functions

- The surface water takings are simple diversions.
- There is very little change in the amount of water being received downstream.

Most days 100% of the water flowing upstream will be diverted downstream and therefore the can be no impact to the function of the stream. Only large storm events will result in excess water being diverted to the SWMP which discharges into the same creek only 2 kilometers further downstream of the construction site.

- The taking is only temporary to allow completion of fish habitat compensation works for the engineered stream that will replace the agricultural drains that existed and therefore likely improve habitat for fish and invertebrates.

Habitat protection

- Conditions in the PTTW protect water quality (TSS, DO, and temperature) crucial to this type of habitat.
- Site is under a DFO authorization that in their opinion will result in better habitat opportunities than the old Findlay Creek.

Groundwater/surface water interactions

- Taking is only of water that would naturally runoff from the western wetland under Albion Rd.
- The proponent has indicated that there are no other major groundwater inputs to the stream and the taking from the stream is therefore unlikely to cause water levels problems in the core wetland behind the berm.

Water Balance and Sustainable yield

- Water that naturally runs off from the western wetland is taken and diverted back into Findlay Creek. There is no change in the water balance of the Creek.

Planned Municipal Use

- Groundwater and surface water takings in relation to the subdivision construction and impacts to the wetland were considered under the planning approval process and the fisheries habitat authorization.

Use of Water

- The diversion is a "take and replace" therefore there is no loss of water

Conclusion

59. In conclusion, the data used to assess the application for this PTTW was the best available data and the reviewer and other agencies are satisfied that the natural functions of the creek will be maintained.

60. The surface water component of this PTTW provides adequate water quality and quantity protection for Findlay Creek. The diversions are only authorized by DFO to occur from July 1, 2009 to December 31, 2010 with most of the work scheduled to take place during the July 01 to September 30 period in 2009. The only other surface water takings over the 10 year life of the PTTW are from ponded areas. Water from these areas will be directed to the SWMP which is designed to attenuate sediment.

61. The modification to runoff ditching and realignment of the North South swale and ponded water throughout the site will result in pumping any water encountered to the storm sewer system.

62. Impact to fish habitat and the fishery downstream of the construction area should be minimal when the proper sedimentation controls are employed as required in the PTTW. To ensure water quality is maintained there will be continuous monitoring of temperature and periodic measures of Total Suspended Sediment (TSS) and dissolved oxygen (DO) during the construction phase as well as some follow-up monitoring once construction has been completed.

**AFFIRMED BEFORE ME** at the City of Kingston in the Province of Ontario

this 5th day of June, 2009 )
)
)
)
)

Marie claire Suzanne Gervais
A Commissioner, etc.

Dana Cruikshank

Marie Claire Suzanne Gervais, a
Commissioner, etc., Province of Ontario,
for the Government of Ontario, Ministry
of the Environment.
Expires October 22, 2011.