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MAR 30 2011

Darlene Conway, P. Eng.
291 Duncairn Avenue
Ottawa ON K1Z 7H1

Dear Ms. Conway:

Thank you for your letter dated August 29, 2010 regarding the City of Ottawa (City) and Kanata West Owners Group's (KWOG) (together the Proponents) proposed seven projects in the Kanata West Development Area (KWDA). Members of the public, including yourself, have requested that the Proponents be required to prepare an individual environmental assessment (EA) for the proposed Carp River, Poole Creek and Feedmill Creek Restoration Plan (Restoration Plan), and for six projects under the Kanata West Master Servicing Study (KWMSS), and Kanata West Transportation Master Plan (KWTMP) (together the Kanata West Projects), located in the City of Ottawa. I welcome your comments on the Kanata West Projects.

You have requested that the Proponents be required to prepare an EA for the Kanata West Projects. I am taking this opportunity to inform you that I have decided that an individual EA is not required. As part of this decision and to ensure that the interests and concerns of the community are protected, I am imposing conditions on the Proponents that the commitments made in response to the Minister of the Environment's (Minister) July 21, 2008 Order for the Kanata West Projects be fulfilled to ensure that the environment is being protected as the Proponents move through the detailed design stage and implementation of the Kanata West Projects. Furthermore, I am imposing conditions that the calibration and validation exercise for the stormwater management (SWM) models for the Upper Carp River watershed and the associated Model Validation Report must be completed before SWM Ponds 1, 2 and 5 are implemented.

In making this decision, I have given careful consideration to the Kanata West Projects' documentation, the provisions of the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA), the issues raised in your request, and relevant matters to be considered under Section 16 of the *Environmental Assessment Act* (EAA). The reasons for my decision are briefly discussed below.

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The Class EA is a process by which proponents plan and develop projects of this type, including evaluating alternatives, assessing environmental effects, developing mitigation measures, and consulting with the public, without having to obtain approval from me and the Lieutenant Governor in Council for each individual project.

The Class EA has itself been subject to review and approval under the EAA, which determined, in part, that the application of the Class EA process would enable proponents to meet the intent and purpose of the EAA. The Proponents have demonstrated that they have planned and developed the Kanata West Projects in accordance with the provisions of the Class EA. I am satisfied therefore that the purpose of the EAA, "the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment", has been met for the Kanata West Projects.

Your concerns together with the reasons for my decision are set out below. The issues and concerns raised by you and other requesters were extensively reviewed. I am satisfied that the issues and concerns have been addressed by the Proponents' work done to date, or will be addressed in future work that is required to be carried out.

You are concerned with stormwater volumes and downstream flood risk from developments that are outside the Kanata West Development Area (KWDA).

The purpose of the Kanata West Projects is the development of new infrastructure to service new developments in the KWDA and the restoration of the Carp River corridor to accommodate future growth while ensuring that there is no significant environmental impact and no flood risk to people and infrastructure in and outside the KWDA. The Part II Order review process deals only with those projects in the KWDA that are subject to Part II Order requests and not other developments outside of the KWDA.

The Mississippi Valley Conservation (MVC) authority was a committing agency during the Class EA process for the Kanata West Projects. The Ministry of the Environment (MOE) relies on the MVC, including through its regulatory permitting process, to address matters of flood risk. The MVC will review permit applications when submitted by the Proponents and other developers in the area where it could impact on the Carp River corridor and its tributaries. The MVC has confirmed that it will only support and issue permits for any proposed work that would not increase flood risk in its mandated area.

The safeguards relating to (SWM) volumes and downstream flood risk from the KWDA are described in the Implementation Plan Kanata West Development Area, July 2010

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(Implementation Plan) which describes limiting development (i.e. limiting some development until completion of the Restoration Plan) and introducing SWM criteria for interim development to ensure that there are no downstream flood risks from the KWDA.

I am satisfied that concerns regarding stormwater volumes and flooding have been addressed by phasing development and introducing SWM criteria for interim development. As the regulatory agency, the MVC has confirmed that no permits will be issued if there is a potential for flood risk in and downstream of the KDWA as a result of the Kanata West Projects.

You contend that as the Glen Cairn community (upstream of the KWDA) flooding issues have not yet been resolved, development downstream may adversely impact flood levels in the Glen Cairn community. You state further that the Proponents have not acknowledged a change in the environmental setting outside the KWDA (July 24, 2009 flooding event) in the Kanata West Projects' documentation, and instead are piece-mealing projects.

The City confirms that the Glen Cairn community affected by basement flooding was built using previous standards that do not include engineered provisions to deal with large/infrequent rainstorm events. Much of the Glen Cairn community was built in the 1960s and 1970s before implementation of dual drainage standards (minor system and a major system). The storm drainage systems of the day were not designed to handle large infrequent rainfall events.

The Glen Cairn Community flooding issues (West End Flooding Investigation) and the Kanata West Projects are separate undertakings. The Glen Cairn community flooding issues are presently being assessed under an ongoing separate Class EA process. The City is determining what infrastructure is required for the existing houses in the Glen Cairn community to prevent future flooding in basements. Whereas the purpose of the Kanata West Projects is the development of new infrastructure to service new developments and the restoration of the Carp River corridor, to accommodate future growth while ensuring that there is no significant environmental impact and no flood risk to people and infrastructure in and outside the KWDA.

The July 2009 flooding event occurred during the Class EA planning process for the Kanata West Projects. The July 2009 storm information was considered for the Kanata West Projects and this information formed a significant part of the development of the Carp River Restoration Plan – Widening Alternatives Final Report May 18, 2010 (Carp River Widening Report). Section 3 of the Carp River Widening Report summarizes the

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data reviewed and model update methodology using the July 2009 storm event in the Carp River models originally prepared for the Restoration Plan.

Based on my staff's review of the Kanata West Projects, the Proponents did consider the July 2009 rainfall event information in the Carp River models. The flooding issues in the Glen Cairn community are being addressed by the City and the flooding issues will not be impacted by the Kanata West Projects. I am satisfied that the City is not breaking up or piece-mealing a larger project into smaller component parts because the purpose of the investigation of the Glen Cairn community flooding event and the Kanata West Projects are independent of each other.

You contend that there is an absence of key model input (Manning's 'n') and performance (peak flow) data in the Kanata West Projects' documentation and the fact that the Restoration Plan calls for an increased riparian vegetation over 70 percent of the reach underestimates potential peak flow and flood level increases.

There is not an absence of model input or performance data in the Kanata West Projects' documentation for the purpose of the Class EA planning process. The model input and performance data for the Kanata West Projects will continue to be refined by the Proponents during detailed design and through the calibration and validation exercise. The TPR re-evaluated the Manning's 'n' values that were used in 2005 and 2006 for the 22 Kanata West Projects. Extended tabulation of hydrologic model parameters are provided in the TPR and specific hydraulic issues are tabulated in the TPR as well. The model inputs and performance data for the Kanata West Projects will continue to be refined by the Proponents during detailed design and through the calibration and validation exercise.

The MVC confirmed that while the Manning's 'n' values may be further refined as part of the calibration and validation exercise, the MVC anticipates that any changes to the model of record will be minor. Therefore, there should be little impact on peak flow and flood level increases as a result of the Kanata West Projects during the detailed design stage.

As per the standard Certificate of Approval (CofA) review process under Section 53 of the *Ontario Water Resources Act* (OWRA), the Manning's 'n' values along with other modelling inputs are reviewed and verified to follow engineering design standards. When submitting a CofA application, the applicant (the City) and the designer (engineer) will need to identify the basis for the design and defend and provide sufficient technical rationale on the selection of Manning's 'n' and other design parameters and criteria.

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You contend that the use of low Manning's 'n' value in the modelling in the Restoration Plan will result in regular maintenance of the vegetation cover for almost 50 percent of the restored corridor. This increase will have financial implications for the City as this approach will necessitate regular maintenance of the restored Carp River corridor and this is not documented in the Kanata West Projects' documentation.

I understand that the City's Sewer Guidelines suggest that the Manning's 'n' value should be in the range of 0.06 to 0.11 for floodplains with light brush and trees in the summer. The value of 0.08 has been adopted in the TPR for all areas except ponds and habitat pools. The proposed preliminary drawings for the Restoration Plan include only clusters of brush with existing riverine wetland features to be maintained.

As stated in the issue above, the selection of Manning's 'n' will continue to be refined as part of the calibration and validation exercise for the SWM models. The City has committed to completing the calibration and validation exercise of the SWM modelling, which includes the preparation of a Model Validation Report and the implementation of a contingency plan.

The City has confirmed to MOE staff that the maintenance requirements for the Carp River corridor will be established and budgeted for in the detailed design phase. It is premature at this time to address maintenance costs; the maintenance program will not be finalized until the detailed design phase.

Some of the works identified in the Restoration Plan will be subject to the approval requirements under the OWRA. As previously stated, when submitting its CofA application, the applicant (the City) and the designer (engineer) will need to identify the basis for the design and defend and provide sufficient technical rationale on the selection of Manning's n and other design parameters and criteria.

I am satisfied that the City re-examined the selection of the Manning's 'n' value in the TPR and am satisfied that values will be further refined as part of the calibration and validation exercise. In addition, I concur with the City that the finalizing of the vegetation maintenance program and associated costs are appropriate during the detailed design stage.

You contend that the detailed model data predicts negative flows and suggests that water will flow upstream in the absence of tidal influence, which confirms the need to use calibrated models. You state further that the negative flow impacts are not clearly documented in the revisions for the Kanata West Projects' documentation. Furthermore,

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you state that existing condition peak flows have been significantly exceeded for all events within and downstream of the KWDA.

The 2010 Kanata West Projects' documentation concludes that the 100-year detailed model does not indicate negative flows. The MVC concurs with the Proponents' response that there are no negative flows.

The City has committed to a monitoring program as well as a calibration and validation exercise in the KWDA to further refine the Carp River model. As the modelling data is refined as part of the calibration and validation exercise, it is not anticipated that the results from the modelling in the TPR will be fundamentally altered.

Your concerns regarding flooding impacts and modelling data are discussed in the Restoration Plan. The Restoration Plan was included in the Kanata West Projects' documentation for review.

Based on the Kanata West Projects' documentation from the Proponents, there will be no significant peak flows downstream of the KWDA. The models show peak flow increases on some sections of the Carp River. However, the proposed changes in the Restoration Plan demonstrate that, along the 6.4 kilometre (km) distance of the Carp River between Huntmar Road Bridge to the Village of Carp, the peak flows and water levels are virtually the same, resulting in similar travel times of water flow. For those areas experiencing higher peak flows, they will be managed by implementing several measures, such as increase in travel of water flow, a longer channel path in portions of where the water levels are slightly higher, and widening alternatives. I am satisfied that the restoration of the Carp River corridor and its tributaries to a more natural form will improve water flow overall in the Carp River corridor, its tributaries and in the KWDA.

You are concerned that, given the mistakes made with respect to the modelling results, you question whether the results of the modelling has been reviewed and approved by a qualified professional engineer.

Neither the EAA nor the Class EA requires that certain documents be signed off by a licensed Professional Engineer. The definition of what constitutes the practice of professional engineering is, however, very broad and could potentially cover the type of work conducted as part of the evaluation under the Class EA. It is, however, up to the proponent of a project and its consultants to ensure that the correct people are completing the work, including any work that requires a licensed professional. When the Proponents

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apply for their Certificates of Approval, they will be required to have a licensed Professional Engineer prepare and sign-off on certain elements of the applications.

The Proponents' Model Keeper has signed off on the Carp River Widening Report and the TPR.

I am satisfied that the modelling results have been reviewed by the Proponents' Model Keeper.

You contend that there are unreasonable impacts on flow conditions to rural riparian landowners downstream of the urban boundary of the City as a result of the relaxed SWM criteria, which allows a 10 centimetre increase in flood level on the basis of "model tolerance". You further state that this approach avoids the need to properly mitigate excessive peak flow increases.

Based on the Kanata West Projects' documentation from the Proponents, there will be no excessive peak flows; as a result, there will be no impacts to landowners downstream of the KWDA. The modelling demonstrates that peak flows and water levels are virtually the same downstream of Huntmar Bridge to the Village of Carp, which includes the rural riparian landowners.

I understand that the MVC will review flood parameters during detailed design and through the model calibration and validation exercise prior to the issuance of any permits to ensure that there are no flood risk impacts to rural riparian landowners downstream of the KWDA. The MVC has indicated that it will not allow an increase in flood risk and this is documented in the Kanata West Projects' documentation. Any increase of five centimetres or greater over existing conditions would have to be field verified to confirm this increase. The area identified with changes in water level in the TPR is in an area where there is no additional flood risk.

The SWM projects in the KWMSS were developed to meet established SWM criteria to ensure that: groundwater and baseflow characteristics are preserved; water quality will be protected; and, there will not be any increase in flood damage potential. The Ministry of Natural Resources (MNR) Technical Guide – River and Streams System – Flooding Hazard Limits does not address a specific value of tolerance that the comparison of water levels must adhere to.

I am satisfied that the MVC will ensure, during detailed design, that there are no flood risk impacts to riparian landowners downstream of the KWDA through its permit

process. In addition, the City's response to Conditions 1 and 2 of the Minister's Order included commitments by the Proponents to implement a number of measures relating to peak flows and water levels, which is being enforced by way of a condition. In addition, I have imposed a further condition requiring the Proponents to complete the calibration and validation exercise for SWM models prior to implementing Ponds 1, 2 and 5.

You contend that the Restoration Plan and the all the works identified in the KWMSS do not provide for the adequate protection of natural resources, interests of riparian landowners, other uses, and natural amenities. You express further that the Restoration Plan and the KWMSS are shown to result in excessive peak flow increases as a result of reliance on outdated SWM criterion derived from the 2005 Carp River Watershed/Subwatershed (CRWSS).

The 2005 CRWSS was used to support the SWM projects identified in the KWMSS. The MVC confirms that the SWM strategy as outlined in the CRWSS, combined with the proposed Restoration Plan, will result in a net improvement to the ecology and function of the Carp River and, therefore, there will be adequate protection of natural resources, no flood risks to riparian landowners, and no impacts to other uses and natural amenities.

The MVC further states that, as a result of the Restoration Plan, the projected changes in peak flows do not produce an impact on flood risk to human health and safety, no impact on the ecology of the littoral zone (littoral zone refers to that part of a river that is close to the shore) and riparian zone, and no change in the rates of erosion and deposition.

The SWM projects in the KWMSS were developed to meet established SWM criteria to ensure that there is no potential for flood damage. This demonstrates that the SWM criteria to support the SWM projects are not outdated.

The Restoration Plan and the KWMSS do not show excessive peak flow increases; therefore, the SWM criteria derived from the CRWSS to support the SWM projects are not outdated.

I am satisfied that the Restoration Plan and the KWMSS provide for the adequate protection of natural resources and riparian landowners to avoid flood risk in and outside the KWDA. The Restoration Plan and the KWMSS do not show excessive peak flows and the identified SWM criteria in the KWMSS will need to meet design objectives specified in MOE's Design Guidelines for Sewage Works, 2008, and the MOE's Stormwater Management Design Manual (2003) prior to the issuance of the CsofA.

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You contend that the worst case volumetric approach that is purported to provide a sufficient level of assurance that the projects and subsequent development in the KWDA will not cause additional flooding.

The worst case volume analysis was one of several components of analysis that was completed and considered by the Proponents for other developments outside the KWDA. The various components of analysis were undertaken to determine the impact on water and volume flow in and outside the KWDA as a result of development. The volume analysis was reviewed by the City's Model Keeper and documented in the TPR. The May 27, 2009 City Council report approving the TPR directed City staff to retain Greenland International Consulting Ltd. as the Model Keeper for the Kanata West Projects. The Model Keeper is responsible for documenting any changes to the model due to the calibration and validation exercise and circulates them to consultants working on various projects. The Model Keeper was contracted to provide an objective third party-review on the work that has been completed to date on the Restoration Plan and related undertakings for the Kanata West Projects.

The worst case volumetric approach used by the Proponents, in advance of completing the calibration and validation exercise, is designed to avoid additional flooding both in the KWDA and to other developments outside the KWDA. The worst case volumetric approach is only part of the approach used by the Model Keeper to identify the potential changes that could occur with the model of record through the calibration and validation exercise. The findings of the TPR confirm that there is insufficient data currently to fully calibrate and validate the models. Stream gauges have been installed in the KWDA to measure and collect rainfall data. The data collected will enable further calibration of the models so that appropriate adjustments to the Restoration Plan and other projects in the KWDA can be made as some development occurs.

The worst case volumetric approach used by the Proponents to prevent flooding meets MNR's Technical Guide River and Stream Systems: Flood Hazard Limits.

One of the recommendations and several safeguards included as part of the TPR is that, should development in the KWDA proceed in advance of the final validation of the model, all applications be reviewed by the City's Model Keeper to ensure that any changes in development that impact the models of record are identified and tested prior to approval of the application. This includes an independent check of hydraulic gradelines to ensure basements are protected. Any changes to the model parameters would be included in the model of record.

The City has confirmed to MOE staff that documentation relating to future changes in the models and design adjustments that may be required when final SWM facility locations are being designed will be kept on file and available to agencies and the public upon request.

The Proponents have consulted with staff from MOE and other agencies, including the Ministry of Transportation and the MVC during the preparation of the Implementation Plan. The Implementation Plan incorporates the TPR recommendations.

I am satisfied that, through the TPR review and other work that was required to satisfy Conditions 1 and 2 of the Minister's Order, concerns relating to the use of worst case volumetric approach used in the modelling and concerns with flooding have been adequately addressed in the Proponents' Kanata West Projects' documentation and through the commitments made by the Proponents that they will be required to adhere to. In addition, conditions are being placed on the Proponents that involve restrictions on development of SWM Ponds 1, 2 and 5 until the SWM model is calibrated and validated.

You contend that the Proponents have failed to consider all reasonable alternatives with respect to the SWM projects in the KWMSS and the Restoration Plan.

Based on MOE staff review of the Kanata West Projects' documentation, reasonable alternative solutions were evaluated for the SWM projects in the KWMSS and the Restoration Plan.

The alternatives solutions considered by the Proponents specifically for the SWM projects in the KWMSS were: eight small ponds; five ponds; and, seven ponds.

The Restoration Plan outlines the approach the City undertook to determine the preferred alternative for restoring the Carp River and its tributaries. The City developed alternatives using a two-phase process. The first phase involved the development of preliminary alternatives and a screening process. The preliminary alternatives evaluated in this phase included: do nothing; harden channel (i.e. concrete lined portions of the channel); and, natural channel design. The second phase involved refining the preferred preliminary alternative (natural channel design). The alternatives considered were local restoration and full restoration.

Based on MOE staff review of the alternatives considered, I am satisfied that a reasonable range of alternatives were considered for the SWM Projects and the Restoration Plan and I am satisfied that the requirements of the Class EA have been met.

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You contend that there has been a lack of transparency in the posted documentation for the Kanata West Projects, specifically in the TPR and the Carp River Widening Report, as these reports do not document the input parameters and output to better understand the model results.

Appendix 4 of the Carp River Widening Report contains the output files for the modeling and this was made available during the public review period.

I understand that, on August 23, 2010, the City did provide you with additional modelling data relating to the Carp River Widening Report for the Kanata West Class EA Projects.

With this decision having been made, the Proponents can now proceed with the seven Kanata West Projects, subject to the conditions I have imposed and any other permits or approvals required. The Proponents must implement the Kanata West Projects in the manner in which it was developed and designed, as set out in the documentation, and inclusive of all commitments made during the review of the Part II Order requests, mitigating measures, and environmental and other provisions therein.

Again, I would like to thank you for participating in the Class EA process and for bringing your concerns to my attention.

Sincerely,



John Wilkinson
Minister of the Environment

- c: Mr. Don Herweyer, Program Manager, City of Ottawa
Ms. Kelly Roberts, Environmental Planner, Delcan Corporation
Mr. Mike Green, Project Manager, KWOG

