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Report

Planning, Design and Development Committee

Committee of the Council of
The Corporation of the City of Brampton

Date: September 2, 2010

City File: BP51-1.001

PLANNING, DESIGN & DEVELOPMENT COMMITTEE
DATE: September 8, 2010

Subject: **RECOMMENDATION REPORT**
Application to Amend the Official Plan to Implement Block Plan Sub-Area 51-1 of the Mount Pleasant Secondary Plan.
GAGNON AND LAW URBAN PLANNERS LTD., KLM PLANNING PARTNERS INC. AND MMM GROUP LTD. (VARIOUS LANDOWNERS IN BLOCK PLAN SUB-AREA 51-1 OF THE MOUNT PLEASANT SECONDARY PLAN)
South of Mayfield Road, East of Mississauga Road, North of Bovaird Drive and the James Potter Road extension and West of Creditview Road
Ward: 6

Contact: Allan Parsons, Manager, Planning & Land Development Services (905-874-2063)

Overview:

- **An Application to Amend the Official Plan has been filed to implement Block Plan Sub Area 51-1 within the Mount Pleasant Secondary Plan.**
- **Mount Pleasant Secondary Plan policies enable modified block plan planning, scoped block plan studies and concurrent processing of development applications and integration with the Municipal Class EA for the Collector Road Network.**
- **This report recommends:**
  - **approval in principle of the Sub-Area 51-1 Block Plan;**
  - **revisions to the Block Plan Official Plan Amendment necessary for adoption by City Council;**
  - **issuance of Final Block Plan Approval, including a Final Block Plan Official Plan Amendment, once all requirements have been completed to the satisfaction of the Commissioner of Planning, Design and Development;**
  - **approval in principle, subject to input on the Mount Pleasant Secondary Plan Subwatershed Study and the Environmental Implementation Report, before the Block Plan Official Plan Amendment is adopted by City Council;**

- **Comments arising from the June 7, 2010 Statutory Public Meeting, and written submissions are also discussed in the report.**
- **Should Council endorse the recommended approval in principle of the Block Plan, then staff will continue to work with the landowners group and stakeholders and report back in early 2011 with the Official Plan amendment implementing the Block Plan.**

RECOMMENDATIONS:

1. **THAT** the report from Allan Parsons, Manager of Development Services, and Neal Grady, Development Planner, Planning Design and Development Department, entitled Application to Amend the Official Plan to Implement Block Plan Sub-Area 51-1 of the Mount Pleasant Secondary Plan- **GAGNON AND LAW URBAN PLANNERS LTD., KLM PLANNING PARTNERS INC. AND MMM GROUP LTD. (VARIOUS LANDOWNERS IN BLOCK PLAN SUB-AREA 51-1 OF THE MOUNT PLEASANT SECONDARY PLAN)** City File Number: BP 51-1.001,Ward 6, dated September 2, 2010 to the September 8, 2010 Planning, Design and Development Committee Meeting be received;

2. **THAT** the Block Plan for the Mount Pleasant Secondary Plan Block Plan Sub Area 51, prepared by Gagnon & Law Urban Planners Ltd., dated June 10, 2010, be endorsed, subject to the resolution of the following matters, to the satisfaction of the Commissioner of Planning, Design and Development:

   (a) adjustments to the Mount Pleasant Secondary Plan Natural Heritage System, the Block Plan Official Plan Amendment and the Block Plan, to reflect a substantially completed Subwatershed Study and an advanced Environmental Implementation Report, in accordance with the principles outlined in the "Implementation Principles for the Subwatershed Study, 2009", Appendix F to the Mount Pleasant Secondary Plan;

   (b) final adjustments to the size and location of school sites;

   (c) increasing the right-of-way widths along portions of various school site frontages from 16.5 metres to 21.5 metres to the satisfaction of the Director of the Engineering and Development Services Division in consultation with the Peel District School Board and the Dufferin-Peel Catholic District School Board;

   (d) adjusting if required, the location and alignment of the segment of the Transit Spine Collector Road within the Peel Regional Police Association lands;

   (e) incorporating Rights-of-Way that reflect the Regional Road Cross Sections;

(f) revising as necessary, the size and design of stormwater management ponds; and,

(g) accommodating any required revisions identified through the Mount Pleasant Secondary Plan Sub-Area 51-1 Block Plan Studies and the receipt of comments from City Departments and external commenting agencies to the satisfaction of the Commissioner of Planning, Design and Development.

3. **THAT** prior to the adoption of the Sub-Area 51-1 Block Plan Official Plan Amendment, the Commissioner of Planning, Design and Development shall be satisfied that the Mount Pleasant Secondary Plan Natural Heritage System is in accordance with the policies of the Mount Pleasant Secondary Plan, the Implementation Principles for the Mount Pleasant Subwatershed Study, a substantially completed Mount Pleasant Secondary Plan Subwatershed Study and a sufficiently advanced Environmental Implementation Report.

4. **THAT** the draft Block Plan Official Plan Amendment for Sub-Area 51-1 of the Mount Pleasant Secondary Plan found at Appendix 1 of this report be endorsed in principle, subject to the recommendations contained below being addressed to the satisfaction of the Commissioner of Planning, Design and Development, and that staff be directed to prepare the final Block Plan Official Plan Amendment document for the consideration of City Council based on:

(a) the Subwatershed Study being substantially completed/approved, and the Environmental Implementation Report being sufficiently advanced, to the satisfaction of the Commissioner of Planning, Design and Development, in consultation with the Credit Valley Conservation Authority;

(b) any policy inclusions, revisions or deletions, identified through the Mount Pleasant Secondary Plan Sub-Area 51-1 Block Plan Studies and the receipt of comments from City Departments and external commenting agencies;

(c) a revised Block Plan Schedule BP 51-1 that reflects the final approved Block Plan as outlined in Recommendation 2 of this report;

(d) amendments to the Mount Pleasant Secondary Plan policies and schedules that might be necessitated through the issuance of final block plan approval;

(e) finalize recommended policies for the apartment sites at the north-west and north-east intersections of the Transit Spine Collector Road and the Sandalwood Parkway extension. These lands will be zoned to allow for a variety of uses and densities consistent with the development objectives of the Mixed-Use areas. A maximum overall density of approximately 120 units per net hectare and a maximum height of 8 storeys may be

permitted. Notwithstanding these density and building height requirements, some increase in density and building height may be permitted, provided that the development proposal addresses the following matters to the satisfaction of the Commissioner of Planning, Design and Development:

i) consistency with the City's Growth Plan Official Plan Amendment and other applicable policy objectives of the City's Official Plan;

ii) design drawings and cross sections that show the scale and massing of the apartments or combined stacked townhouses and apartments in the context of the surrounding mixed use node and other land uses and features in the Mount Pleasant Secondary Plan;

ii) an evaluation of shadow impacts;

iii) access and traffic generation;

v) zoning requirements including building height (either a maximum height or a building height range), density, FSI and parking; and,

vi) implementation methods, including potential zoning requirements and/or conditions of draft plan approval to ensure land use compatibility is achieved with respect to building density and height

(f) deferring revisions to the draft Block Plan Official Plan Amendment, section 3.2(7) as contained in Appendix 1, which references a new proposed policy Section 5.3.4.3 in the approved Mount Pleasant Secondary Plan involving an increase to the site area and maximum floor space for a "Convenience Retail" designation located at the north-east intersection of Sandalwood Parkway and Mississauga Road until the following matters have been addressed, including, but not limited to:

i) confirmation to the satisfaction of the Commissioner of Planning, Design and Development that the proposed floor space increase of 1,393 square metres (15,000 square feet) above the maximum floor area for "Convenience Retail" plazas specified in the Mount Pleasant Secondary Plan does not impact the planned commercial function for the entire Mount Pleasant Secondary Plan areas and the Mount Pleasant Mobility Hub; and,

ii) a concept site plan and site specific design analysis is received to the satisfaction of the Commissioner of Planning, Design and Development to demonstrate that the proposed site area of approximately 1.8 hectares (4.5 acres) to accommodate the

increased convenience commercial floor space, is consistent with the Block Plan Community Design Guidelines and is compatible with the objectives for the development of the Mixed Use Area 1 node; and,

iii) details regarding the proposed future uses.

(g) revisions to the draft Block Plan Official Plan Amendment, section 3.2(6) as contained in Appendix 1, which references Section 5.3.2.5 of the approved Mount Pleasant Secondary Plan dealing with lands south of the CNR and west of James Potter Road, to specify the potential policy identification of a required collector road network. The policy shall read as follows:

"Road network and access required to accommodate travel demand in and associated with the "District Retail" designation and adjacent lands shall be explored and confirmed, with respect to demonstrating and not precluding the ability of achieving future east-west road network connectivity, at the Block Plan Stage."

(h) revisions to the draft Block Plan Official Plan Amendment, section 3.1 (4), sub-section 5.4 , as contained in Appendix 1, by deleting policy 5.4 and replacing it with the following:

5.4 Prior to the Draft Approval of the first Draft Plan of Subdivision in the Block Plan Area, a Developer Cost Sharing Agreement shall be executed by all participating landowners in accordance with the principles agreed to by the City prior to the final Block Plan approval. The Cost Sharing Agreement shall provide for the timely delivery of community use lands and infrastructure (including parks, arterial and collector roads, schools, woodlots, stormwater management ponds);

(i) revisions to the draft Block Plan Official Plan Amendment, section 3.1 (4), to add a new policy section after sub-section 5.7, as contained in Appendix 1, as follows:

5.8 In order to ensure conformity with the Provincial Growth Plan and the City's Growth Management objectives, Block Plan 51-1 shall be planned to achieve a population in the order of 22,000 persons and employment in the order of 2,700 employees. Implementing zoning and plans of subdivision shall contain provisions to plan for the achievement of these targets;

(j) revisions to the draft Block Plan Official Plan Amendment, to delete policy section 3.2(6) as contained in Appendix 1, which references Section 5.2.1.3 of the approved Mount Pleasant Secondary Plan and replace it with the following, subject to further potential revisions arising from the approval of the Sub-Area 51-1 Community Design Guidelines:

Buildings fronting onto Transit Spine Collector Road within Mixed Use Areas shall range in height from 3 to 6 storeys. Building Heights within a "Convenience Retail", "Neighbourhood Retail", "Mixed Use Areas" or "School" designation may be less than 3 storeys but are encouraged to incorporate building mass and height approximating 2 storeys. One and two storey buildings are permitted through the remainder of the Mixed-Use Area;

(k) revising Section 6.4 Pedestrian/Cyclist Links, specifically sub-section 6.4.1 of the approved Mount Pleasant Secondary Plan to add the words "facilities and infrastructure" as follows:;

6.4.1 Pedestrian and cyclist links, facilities and infrastructure shall be provided, where appropriate, to integrate the elements of the Residential and Commercial Land Uses, Transportation, Recreational Open Space and Natural Heritage Systems, to provide comprehensive access to those systems and to serve as a recreational and aesthetic amenity to the community;

(l) revising Section 10.2 Staging and Sequencing, specifically sub-section 10.2.1 i) of the approved Mount Pleasant Secondary Plan to add a reference to Wanless Drive as follows:

10.2.1 i) Road and transportation related infrastructure required for the development of the entire Mount Pleasant Secondary Plan, namely the Sandalwood Parkway extension between Creditview Road and Mississauga Road, Wanless Drive between Creditview Road and Mississauga Road, and the Creditview Road re-alignment comprising the James Potter Road extension and CN Rail underpass and the remaining segment that extends north to Mayfield Road.

5. **THAT** the Commissioner of Planning, Design and Development be delegated the authority to issue final block plan approval for Sub-Area 51-1 of the Mount Pleasant Secondary Plan once the following matters have been addressed to his satisfaction:

(a) The Block Plan Official Plan Amendment for Sub-Area 51-1 of the Mount Pleasant Secondary Plan shall be finalized, and adopted;

(b) The Environmental Implementation Report prepared by Stonybrook Consulting Inc. et. al. is substantially completed to the satisfaction of the Commissioner of Planning, Design and Development, in consultation with Credit Valley Conservation and other applicable external commenting agencies. Any resulting conditions of approval, including necessary revisions to the Block Plan shall be accommodated.

(c) The realignment of the East Huttonville Creek corridor and its relationship to the northwest corner of the 100 acre Creditview Road City Park shall be assessed with the intent to preserve an existing soccer/lacrosse field while providing a connected natural heritage system;

(d) The final version of the Block Plan is prepared which incorporates the revisions identified in Recommendation 2 of this report;

(e) The Mount Pleasant Block 51-1 Transportation Study and Collector Road Environmental Assessment prepared by BA Group Transportation Consultants is substantially completed to the satisfaction of the Commissioner of Planning, Design and Development in consultation with applicable external commenting agencies. Any resulting conditions of approval, including necessary revisions to the Block Plan shall be accommodated;

(f) The Growth Management Staging and Sequencing Strategy Report prepared by Gagnon and Law Urban Planners Ltd. shall be substantially completed to the satisfaction of the Commissioner of Planning, Design and Development which will demonstrate how the required infrastructure and community facilities will be delivered in a timely manner while maintaining service levels.

Key infrastructure to be addressed in the report includes the Creditview Road re-alignment/James Potter Road extension and the CN Rail underpass, the extension of Sandalwood Parkway and Wanless Drive, and the construction of the Transit Spine Collector Road;

(g) The Community Design Guidelines prepared by STLA Design Strategies and John G. Williams Architect is substantially completed to the satisfaction of the Commissioner of Planning, Design and Development, in consultation with applicable external commenting agencies. Any resulting conditions of approval, including necessary revisions to the Block Plan shall be accommodated;

(h) The Commissioner of Planning, Design and Development shall be satisfied that the key principles of a Cost Share Agreement and other funding agreements to provide for the delivery of community land uses within Block Plan Sub-Area 51-1, together with the contribution of the

Block Plan Sub-Area 51-1 landowners for the financing and delivery of roads and infrastructure shared among Mount Pleasant Village and Secondary Plan 51 landowners. This infrastructure shall include the dedication and construction of James Potter Road and the James Potter Road underpass, and other items set out in the Cost Sharing and Reimbursement Schedule in the Memorandum of Understanding and Section 12.4.3 of the Mount Pleasant Secondary Plan;

(i) The Commissioners of Planning, Design and Development, and Works and Transportation, shall be satisfied that all appropriate mechanisms and agreements for the early delivery of key infrastructure and services are in place, including Single Source Agreements or Front-End Financing Agreements, as required, which shall address among other matters, the delivery of James Potter Road and James Potter Road Underpass, the Transit Spine Collector Road and Wanless Drive; and,

(j) A Heritage Strategy shall be completed to the satisfaction of the City with respect to all heritage resources, including the resources located at 1930 Wanless Drive and 11157 Mississauga Road. Any resulting conditions of approval, including necessary revisions to the Block Plan shall be accommodated;

6. **THAT** outstanding comments shall be received and taken into consideration by the Commissioner of Planning, Design and Development;

7. **THAT** prior to final block plan approval, the Commissioners of Planning Design and Development, and Works and Transportation, shall be satisfied with the provisions of the Subwatershed Study to ensure water quality objectives have been satisfied which may include a retrofit and pollution control strategy for downstream reaches of the watershed in order to achieve water quality objectives;

8. **THAT** staff be directed to work with Norval Farm Supply while continuing to process the Block Plan Official Plan Amendment Application for Sub-Area 51-1 to ensure that Block Plan permissions and/or the subdivision approvals process minimizes any adverse effects and protects their business operations;

9. **THAT** the Planning, Design and Development Department continue on-going consultation with stakeholder groups such as Non-Government Organizations (NGO), including, the Brampton Environmental Planning Advisory Committee (BEPAC), the Sierra Club, and the Peel Regional Police Association; and,

10. **THAT** staff be authorized to obtain the pre-dedication of roads within the Sub-Area 51-1 Block Plan if necessary for final Block Plan Approval

INTRODUCTION:

Background:

The Mount Pleasant Secondary Plan (Area 51) was approved by City Council on February 10, 2010.

After holding a Pre-Consultation Meeting with City staff on April 13, 2010, the Landowners Group filed a Block Plan Official Plan Amendment concurrent with five (5) associated Applications to Amend the Zoning By-Law and Proposed Draft Plans of Subdivision. These applications proceeded to the June 7, 2010 Statutory Public Meeting.

Figure 1 attached hereto comprises the Block Plan filed with the Sub-Area 51-1 Block Plan Official Plan Amendment that formed part of the June 7th Statutory Public Meeting. The boundaries of the five (5) associated proposed draft plans of subdivision that also proceeded to the June 7th Statutory Public Meeting are superimposed on Figure 1. For the purposes of this report then, Figure 1 comprises the initial Block Plan that is now superceeded by the revised Block Plan found at Figure 2 of this report.

Key residential uses shown on the Block Plan include:

- Low Density Residential: single-detached and semi-detached dwelling units;
- Medium Density Residential: townhouse dwelling units comprising a variety of housing forms and types including street townhouses, rear lane townhouses and block condominium townhouses; and,
- High Density Residential: apartment dwelling units as permitted by the Mixed Use area policies in the approved Mount Pleasant Secondary Plan. .

Other key land uses and community features shown on the Block Plan include:

- Commercial: two (2) district retail blocks; two (2) neighbourhood commercial blocks; four (4) convenience commercial blocks; and, three (3) motor vehicle commercial blocks;
- Open Space (Natural Heritage System) and Stormwater Management: Huttonville Creek and associated tributaries, wetlands and woodlands located between Mississauga Road and Creditview Road and extending from Mayfield Road to Bovaird Drive; and, seven (7) stormwater management ponds;
- Parks: the existing Creditview Road City Park, and, twelve (12) neighourhood parks;

- Institutional: four (4) public junior elementary schools, three (3) public senior elementary schools, one (1) public secondary school, two (2) separate elementary schools and one (1) separate secondary school; two (2) place of worship sites;

- Special Policy: this reflects the Special Policy Area designation in the Mount Pleasant Secondary Plan regarding the Norval Farm Supply lands that permits the re-development for commercial and/or higher density residential uses through the submission of an Application to Amend the Official Plan and Zoning By-law; and,

- Pathways/Trails Network: an active transportation network of pathways (e.g. Green System Trail, Multi-Use Path, On-street Bike Lanes and Signed Bike Route) connects neighbourhoods, the open space system and community focal areas within the Mount Pleasant Community, and to neighbouring communities including Mount Pleasant Village and the GO Station.

Size/Location/Surrounding Land Uses:

Block Plan Sub-Area 51-1 has an area of approximately 518 hectares (1,280 acres) and is located south of Mayfield Road, east of Mississauga Road, north of Bovaird Drive and the James Potter Road extension, and west of Creditview Road. The surrounding land uses are described as:

North: Mayfield Road, beyond which is vacant agricultural land and rural residential dwellings within the Town of Caledon.

South: Bovaird Drive, beyond which is vacant agricultural land.

East: the James Potter Road extension and Creditview Road, beyond which is primarily single detached residential uses within the Fletcher's Meadow Secondary Plan;

West: Mississauga Road, beyond which is vacant agricultural land and rural residential dwellings within Secondary Plan Areas 52 and 53.

CURRENT SITUATION:

Mount Pleasant Secondary Plan policies support a modified block plan planning process involving single stage block plan approval, scoped block plan studies, concurrent processing of development applications and integration with the Municipal Class EA for the Collector Road Network. The block plan application for Sub-Area 51-1 has been filed in accordance with these policies and procedures and the required block plan studies received in July/August are currently in circulation for review and comment, along with the latest version of the Block Plan and the applicant's draft Block Plan Official Plan Amendment.

With respect to integrating the planning and approval processes of the *Planning Act* and *Environmental Assessment Act for the Collector Road Network,* the Mount Pleasant Block 51-1 Transportation Study and Collector Road Environmental Assessment prepared by BA Group Transportation Consultants is currently under review. A Public Information Centre for this draft Block Plan Transportation Study was held on June 7, 2010 in conjunction with the Statutory Public Meeting.

In terms of integrating land use and natural heritage system planning, the City is working to finalize the Mount Pleasant Subwatershed Study, including the Phase 2 (impact assessment modeling) and Phase 3 (management strategies, implementation and monitoring) sections. In accordance with the "Implementation Principles for the Subwatershed Study, 2009", Appendix F to the Mount Pleasant Secondary Plan, a Comprehensive Fisheries Compensation Plan (CFCP) will also be completed and submitted for approval concurrent with the preparation of Phase 3 of the Subwatershed Study and the submission of the Environmental Implementation Reports during the Block Plan process. The City and external commenting agencies recognize that the CFCP will be a free-standing document with a separate submission and approval process.

CONSULTATION WITH PUBLIC AGENCIES:

Consultation with public agencies occurs through both the prescribed requirements of the Planning Act, as well as the City's practices and procedures for agency engagement.

In this respect, both the June 7, 2010 statutory public meeting notice and the subsequent notices of application and request for comment were provided in accordance with the requirements of the Planning Act. What is unique with this particular block plan application is the extent of public agency consultation and engagement. Not only was a notice of the filing of the block plan application provided to external agencies in conjunction with the five (5) associated draft plans of subdivision filed within the block plan sub-area 51-1 lands, but also, through discussions with the Region of Peel, a second notice of the filing of the application and request for comments was provided at the end of July 2010 with even more details including: the draft block plan Official Plan Amendment, the revised block plan found at Figure 2 of this report and the various block plan studies filed to date.

The second more detailed notice of the filing of the application and request for comments was forwarded to the following key agencies that have been involved in the development of the Mount Pleasant Secondary Plan, including:

- The Region of Peel;
- Both School Boards;
- Credit Valley Conservation;
- The Ministry of Natural Resources;
- TransCanada Pipeline; and,

- The Town of Caledon.

Consultation with these external agencies has occurred and will continue through the processing of the block plan application, and in particular, in relation to the finalization of the block plan, block plan Official Plan Amendment and the various block plan studies as discussed in subsequent sections of this report. In addition, meetings have taken place with stakeholder groups such as the Peel Regional Police Association, Norval Farm Supplies, and the Sierra Club.

Examples of external agency consultation include:

- a meeting on July 28, 2010 between both School Boards, the City and the landowners to continue to work on school site locations and access arrangements;

- workshops in July and August 2010 convened by the Region of Peel with respect to new proposed Regional road cross sections; and,

- workshops with the City, CVC and MNR staff with respect to the Natural Heritage System and the Environmental Implementation Report in June and July 2010, with additional workshops scheduled for September, October and November 2010.

DISCUSSION:

Block Plan:

Changes to the initial block plan (Figure 1) have been completed through workshops in May and June attended by City staff and the landowners. This has resulted in the current revised version of the block plan (Figure 2 of this report) that incorporates the results of these workshops and the changes as outlined below, including:

- adjustments to certain park and school locations to enhance their functionality;

- revisions to the local road layout in relatively small localized areas of the block plan to assist in traffic flow;

- minor changes to the arrangement of certain land uses resulting from the above noted revisions to portions of the local road layout; and,

- the identification of multi-use paths, bike lanes and a green trail system within the natural heritage system.

The revised Block Plan (Figure 2) shows the same land uses and community features that were presented at the June 7th Statutory Meeting. The Block Plan also reflects the June 2007, City Council endorsed framework plan, community vision, Mount Pleasant Secondary Plan natural heritage system and planning principles for Mount Pleasant as

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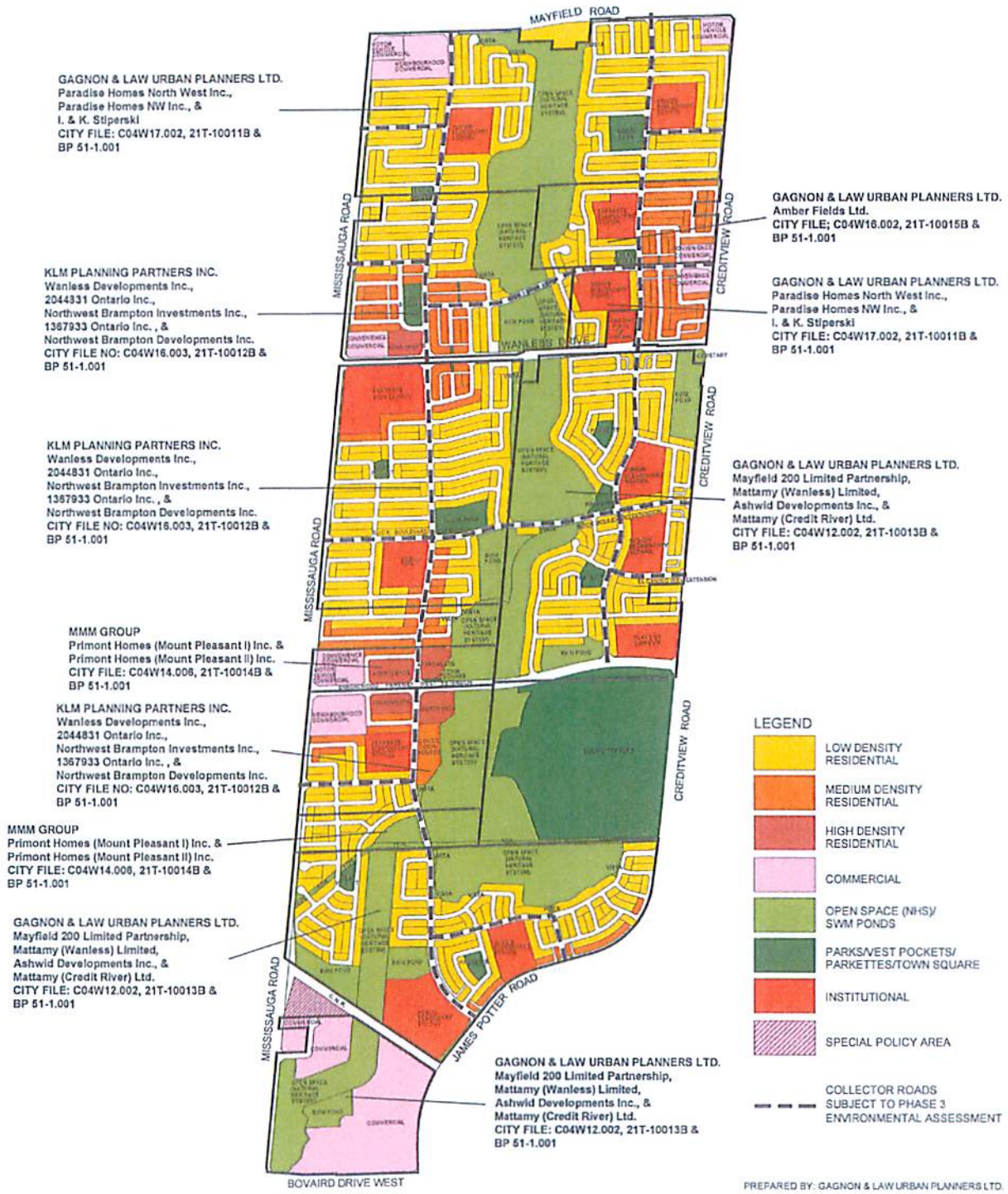

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Date: 2010 08 18 Drawn By: CJK

FIGURE 1 – INITIAL BLOCK PLAN ASSOCIATED DRAFT PLAN OF SUBDIVISION, AND REZONING APPLICATION

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Date: 2010 08 18 Drawn By: CJK

FIGURE 2 - REVISED BLOCK PLAN DATED JUNE 10, 2010

CITY FILE: BP51-1.001

a transit-oriented community that promotes environmental sustainability and a high standard of community design. In addition, the various land uses are in conformity with land use Schedule SP 51-1 of the Mount Pleasant Secondary Plan.

In light of the foregoing, Recommendation 2 of this report seeks approval in principle of the Block Plan, and enables the Commissioner of Planning, Design and Development to approve the final Sub-Area 51-1 Block Plan subject to revisions that have been identified to date through the processing of the Block Plan application. These revisions will assist in further strengthening the form and type of unique community structure envisioned for the Sub-Area 51-1 Block Plan lands. This will also enable the translation of a final approved Block Plan into a formal Block Plan schedule that is an essential part of the final Block Plan Official Plan Amendment document to be recommended for adoption by City Council. Environmental issues, as well as potential revisions to the Block Plan.

***Natural Heritage System*/Mount Pleasant Subwatershed Study Process**

The Mount Pleasant Secondary Plan has provided strong policies and implementation mechanisms that will deliver a substantially enlarged and considerably improved Natural Heritage System (NHS) over the current conditions, totalling approximately 360 acres. That represents an increase over the current 8% of natural cover to 17% natural cover. In addition, Mount Pleasant is being designed as a sustainable community by fully embracing Transit Oriented Development principles and fully integrating the NHS into the community fabric as a "green spine." The Mount Pleasant Natural Heritage System and policies in the Secondary Plan were finalized based on the initial findings of the "North West Brampton Landscape Scale Analysis and Mount Pleasant Subwatershed Study" and extensive consultation with Credit Valley Conservation (CVC) and the Ministry of Natural Resources (MNR) which were documented in a Memorandum of Understanding (MOU) signed by these agencies and the City. The MOU is titled "Implementation Principles for the Subwatershed Study, 2009".

The Subwatershed Study Process for the Mount Pleasant Secondary Plan consists of 3 phases.

Phase I – Characterization: this phase gathers and assesses relevant background studies and field data to establish the form, function and linkages of the existing environmental resources.

Phase 2 – Impact Assessment: this phase tests the February 2010 approved Mount Pleasant Secondary Plan to determine if the various subwatershed targets can be met with respect to overall environmental goals and objectives.

Phase 3 – Management Strategies and Implementation Plan: this phase assesses the Mount Pleasant Land Use Schedule, establishes a set of management solutions, and assesses performance of these various management solutions with respect to the various subwatershed targets.

Block Plan Environmental Planning Process

As outlined in the work plan schedule attached to the "Implementation Principles for the Subwatershed Study, 2009" (see Appendix 7), a concurrent process is intended to allow the finalization of the Subwatershed Study, review of the required Environmental Implementation Report (EIR) and Conceptual Fisheries Compensation Plan (CFCP) in conjunction with the processing of the Block Plan and plans of subdivision. However, the Subwatershed Study is to be substantially finalized and approved prior to approval of the EIR, and the EIR is to be in an advanced stage of finalization prior to final approval of the Block Plan.

The recommendations of this report anticipate staff reporting back to Council in early 2011 with a recommended Official Plan Amendment to implement the Block Plan. As a condition of bringing that OPA forward to Council for approval, the Subwatershed Study needs to be substantially completed and the EIR sufficiently advanced to support the Block Plan OPA.

Current Status of Mount Pleasant Subwatershed Study

Phase 2 of the Subwatershed Study (SWS) continued after Council approval of the Secondary Plan with a second round of impact testing. The testing was done to ensure that the approved Mount Pleasant Secondary Plan Natural Heritage System (NHS) achieved the principles, goals and targets of the *North West Brampton Landscape Scale Analysis*, *Mount Pleasant Subwatershed Study*, and *Implementation Principles for the Subwatershed Study, 2009.*

According to the approved Secondary Plan, if the second round of impact testing supported the proposed NHS, then work on Phase 3 of the SWS could begin immediately. If however, the Phase 2 impact assessments recommended major changes to the NHS, additional rounds of testing would be required.

Phase 2 testing has been completed with no major concerns or issues identified with the NHS as set out in the Secondary Plan and draft Block Plan. However, it was agreed that the City's Consulting Team would run a third and final Hydrologic Modelling Analysis of the NHS to provide additional detail which will be used in the Phase 3 work to develop management strategies and an implementation plan. The City is nearing the completion of Phase 2, with Phase 3 work already underway.

A draft Phase 3 report is expected this fall and will be circulated to City staff, the landowners group and agencies for their review and comments. It is anticipated that a final *North West Brampton Landscape Scale Analysis* and *Mount Pleasant Subwatershed Study* will be presented to City Council by the end of 2010. Initial EIR technical documentation has also been submitted for review.

Mount Pleasant Subwatershed Study Next Steps

As the Subwatershed Study moves forward to the final Hydrologic Modelling Analysis and completion of Phase 3, several specific technical issues have been identified by Credit Valley Conservation (CVC) as matters of concern. These concerns have been discussed over the last several weeks and are expressed in correspondence dated August 4, 2010 and August 17, 2010 (see Appendix 8).

In response to these concerns identified by CVC, several meetings have been held and responses have been provided by the Subwatershed Study Consultant team lead consultant AMEC Earth & Environmental (AMEC) (see Appendix 9, correspondence dated June 11, 2010; July 12, 2010; and, August 24, 2010). Based on the consultation and advice from AMEC, City staff directed the Subwatershed Study consultant team to move forward with final Hydrologic Modelling Analysis and completion of Phase 3 work.

Responses and status of the specific outstanding technical issues are discussed below:

1. Subwatershed Modelling of Runoff

CVC staff has outlined a series of concerns related to the modelling used to assess the stormwater runoff potential from the existing and future land uses within the Mount Pleasant Community and downstream. While these differences are considered by AMEC to be relatively inconsequential to the end results and recommendations of the SWS, City staff has authorized AMEC to update the modelling to address CVC concerns.

2. Low Impact Development Best Management Practices

At a recent meeting between City, CVC, and Landowner, and AMEC staff, an approach to analyzing the effectiveness of Low Impact Development (LID) Best Management Practices (BMP's) in the Mount Pleasant Community was mutually agreed upon. The key difference from the previous analysis involves correlating the performance of the LID measure to the physical draw down of water, based on CVC criteria; that is the ponded water must be infiltrated within 72 hours. The modelling will go forward on this basis.

3. Major Flooding

CVC staff has raised concerns with respect to the difference in the peak flow rates generated by the current study, as compared to previous investigations for these drainage areas completed ten or more years ago. AMEC has conducted a comparison with other Southern Ontario studies and found that the results from the current study fall directly within the median range and as such are considered supportable. In fact, previous assessments for these subwatersheds have tended to underestimate the peak flows for major flooding, therefore the recommendations of the current subwatershed

study are considered conservative and will provide a safer management condition for the future area residents.

4. Erosion

Stormwater management is being designed within the Mount Pleasant Community to maintain off-site erosion potential at existing levels and/or improve the situation. Within the developing lands (Mount Pleasant Community), watercourses are being designed to manage the new urban flows. The criteria being used for off-site erosion control is currently in dispute amongst the Subwatershed Team, Stream Morphologist, and CVC's Peer Reviewer. As a result, it is proposed to verify the criteria through detailed field work this Fall, in support of the EIR process. This will allow the results in the Subwatershed Study to be validated and potentially updated if there is a difference in the criteria based on the results of that further field work.

5. Water Quality

CVC has stated that it prefers a target for water quality management for the Fletcher's and Huttonville Creek systems of "zero impact" (i.e. no net increase in contaminant loading after urbanization). This target even exceeds the current Provincial standard for high quality watercourse systems, which suggest an 80% removal of Total Suspended Solids (Note: Total Suspended Solids is used by the Province as an indicator or benchmark of contamination) and also goes beyond other similar GTA Subwatershed Studies for new urban development. At the outset of the Target setting process for this study, City consultants and Landowner's expressed concerns with CVC's target due to stormwater management technology limitations, however all parties agreed to work to an improvement over existing conditions. As such, through the Subwatershed Study process, the City of Brampton and its Consultant Team have worked closely with CVC and other stakeholders to develop a program for the Fletcher's and Huttonville Creek system, which will also exceed current Provincial Policy. In order to work towards minimizing impacts on water quality from new urban development, the integrated approach put forth in the Subwatershed Study includes the following components:

i) End-of-pipe stormwater management facilities (to control 80% of Total Suspended Solids).

ii) For watersheds where existing development is present (principally Fletcher's Creek) a series of stormwater management retrofits are proposed to reduce contamination load from existing development (consistent with CVC's Water Management Strategy).

iii) Advance pollution control practices to be implemented by private citizens, as well as the public sector. The foregoing can be implemented by way of specifically directed homeowner packages, which advise homeowners on pollution management practices and the latter would relate to methods to be employed by the City of Brampton and Region of Peel in the maintenance and management of its roadways, storm sewers, and other drainage infrastructure.

It is currently envisioned by AMEC that a "zero impact" for contamination load can be realized through the currently proposed approach, (as described above), for the Fletcher's Creek system. In addition, the water quality management approach for the Huttonville Creek is also anticipated to exceed current Provincial standards.

Recommendation 7 of this report recognizes the importance of water quality to the Mount Pleasant Secondary Plan by delaying final block plan approval, until the Commissioners of Planning Design and Development, and Works and Transportation, are satisfied with the provisions of the Subwatershed Study to ensure water quality objectives have been satisfied which may include a retrofit and pollution control strategy for downstream reaches of the watershed in order to achieve water quality objectives.

Environmental Implementation Report:

The purpose of an Environmental Implementation Report (EIR) is to implement the findings of the Secondary Plan level Subwatershed Study. More specifically, policy Section 10.1.4 of the Mount Pleasant Secondary Plan indicates that the purpose of the Mount Pleasant EIR is to demonstrate that issues of stormwater management and infiltration, and confirmation of the limits of the Natural Heritage System, including watercourse corridors, woodlands, wetlands, hedgerows and field swales are addressed.

In recognition of the modified block plan planning process endorsed by City Council for the Mount Pleasant Secondary Plan there will be a phased approach to the preparation of the required EIR. This involves the preparation of a Scoped EIR, to be followed by the Full EIR submission in Fall 2010. Terms of Reference for the EIR were prepared and approved by the City, Credit Valley Conservation (CVC) and the Ministry of Natural Resources (MNR) in July 2010. The Scoped EIR was submitted in early August 2010 for review and comment.

The Scoped EIR addresses certain elements of the Terms of Reference required for the City's review and endorsement of major structural elements of the Block Plan, largely relating to the Natural Heritage System boundaries and stormwater management. This Scoped EIR is intended to provide documentation on the Natural Heritage System boundaries and stormwater management support at sufficient detail to allow the conditional approval in principle of the Block Plan, subject to conditions, as recommended in this report.

Workshops with the City, CVC and MNR staff to review and discuss technical approaches, findings and recommendations prior to the completion of the Full EIR occurred in June and July 2010 and additional workshops have been scheduled for September, October and November 2010. Submission and Completion of the full EIR is anticipated in late Fall 2010.

Concurrent with the submission of the Scoped and Final EIRs, the City is working to finalize the Mount Pleasant Subwatershed Study, including the Phase 2 (impact assessment modeling) and Phase 3 (management strategies, implementation and monitoring) sections, and the landowner's consultants are preparing the Comprehensive Fisheries Compensation Plan (CFCP). This concurrent submission of reports related to the Subwatershed and Block Plan planning process was outlined for the agencies through the "Implementation Principles for the Subwatershed Study, 2009", Appendix F to the Mount Pleasant Secondary Plan. The CFCP will be a free-standing document with a separate submission and approval process under the jurisdiction of the Department of Fisheries and Oceans (DFO).

Recommendation 3 of this report recognizes the importance of the natural heritage system to the success of the Mount Pleasant community by delaying the adoption of the Block Plan Official Plan Amendment, subject to the Commissioner of Planning Design and Development, being satisfied that the natural heritage system is in accordance with the policies of the Mount Pleasant Secondary Plan, the Implementation Principles for the Mount Pleasant Subwatershed Study, a substantially completed Mount Pleasant Secondary Plan Subwatershed Study and a sufficiently advanced Environmental Implementation Report.

Recommendation 9 of this report recognizes the interest and input from other stakeholder groups in the development of the Mount Pleasant Natural Heritage System, by directing the Planning, Design and Development Department to continue on-going consultation with Non-Government Organizations (NGO), such as the Brampton Environmental Planning Advisory Committee (BEPAC) and the Sierra Club.

Schools:

Continued consultation between the City, both School Boards and the landowners has resulted in the requirement to confirm additional minor adjustments to the size and locations of certain school sites. The landowners have provided facility fit plans for all of the school sites relatively early in the planning approvals stages in order to explore these revisions in greater detail. Most of the revisions to date involve minor shifts in location to facilitate School Board requirements with respect to access. In addition, both School Boards and the Transportation Planning Section have confirmed that further revisions to the Block Plan are required to provide a collector road width standard along school site frontages requiring an increase in right-of-way widths from 16.5 metres to 21.5 metres. The Transportation Planning Section advises that this revision is critical to successfully integrating school sites within the fabric of a community, especially in terms of recognizing, controlling and regulating parking and student drop off in areas along the periphery of a school.

Peel Regional Police Association Lands/Transit Spine Collector Road:

A segment of the transit spine collector road runs through the Peel Regional Police Association lands. The Peel Regional Police Association is a non-participatory land

owner in the Secondary Plan and Block Planning processes. However, the Police Association Board has approved in principle a land exchange (see Appendix 6) with the northerly abutting developer; one of the five associated draft plan of subdivision applicants (KLM Planning Partners Inc. Wanless Developments Inc. et al: City Files: C04W16.003/21T-10012B). In this respect, KLM Planning Partners/Wanless Developments Inc. have provided the Police Association with lands designated "Low/Medium Density Residential" and "Medium Density Residential" along the northerly shared property boundary in exchange for the approximate easterly half of the Police Association lands that contains a segment of the planned transit spine collector road.

This land exchange will foster the delivery of the entire transit spine collector road as a crucial piece of infrastructure for Mount Pleasant community while enabling the Police Association to continue to use their existing building and outdoor facilities. Subject to confirmation through the Mount Pleasant Block 51-1 Transportation Study and Collector Road Environmental Assessment, the Block Plan may require further revisions in order to move this segment of the transit spine collector road further to the east to increase the separation distance between the road and the Police Association building and facilities.

Regional Road Cross Sections (Mississauga and Mayfield Roads):

The Region of Peel is currently exploring the opportunity to develop new Regional Road cross section standards. There have been a number of workshops between Regional staff, City staff and the development industry to explore this initiative in greater detail.

The current Regional requirements involve an ultimate right-of-way width of 50 metres on Mayfield Road and 45 metres on Mississauga Road. The Region is continuing to collaborate with City staff and the Mount Pleasant landowners, and in the near future, the Region will prepare and release three draft cross sections involving:

- collector road intersections with a Regional Road (i.e. the westerly extension of Buick Boulevard across Mississauga Road);
- arterial road intersections with a Regional Road (i.e. the northerly extension of Creditview Road intersecting with Mayfield Road); and,
- the intersections of Mayfield and Mississauga Road and Mississauga Road and Bovaird Drive.

Once the draft cross sections are released and commented on, there may be additional revisions to the Block Plan in and around the various intersection conditions noted above.

Stormwater Management Ponds:

The landowner's Engineering Consultant has prepared an analysis of stormwater management pond design criteria that proposes to vary the current City standard with respect to elements such as: the width of the maintenance access road; reductions in the size of sediment storage areas; and reductions to the grade of the pond side slopes. According to the landowner's analysis, this could result in reduced construction and maintenance costs through reductions in the amount of land required to accommodate a storm pond. This analysis is being reviewed by the City's Works and Transportation Department, and the sizes of various stormwater management ponds shown on the Block Plan may undergo further revisions. The ultimate sizes, configurations, and locations of stormwater management ponds, and other technical requirements, shall be confirmed through the Mount Pleasant Secondary Plan Subwatershed Study, the Environmental Implementation Report, as well as the submission of Functional Servicing Reports at the subdivision approvals stage.

Block Plan Studies:

The review and final approval of the block plan studies could result in further revisions to the Block Plan. For example, the Environmental Implementation Report will evaluate a section of the realigned East Huttonville Creek corridor and its relationship to the north west corner of the 100 acre Creditview Road City Park with the intent to preserve an existing soccer field while providing a connected natural heritage system of woodlands and wetlands (See Recommendation 5 (c) of this report). Minor refinements to the Natural Heritage System and the City Park would need to be reflected on the final approved Block Plan. The Block Plan Studies for Sub-Area 51-1 as discussed in a subsequent section of this report include:

- completion of the Subwatershed Study
- a Transportation Study and Collector Road Environmental Assessment;
- a Growth Management Staging and Sequencing Strategy Report;
- Community Design Guidelines; and
- an Environmental Implementation Report.

High Density Residential (Apartment Sites):

Depending upon staff's analysis of the proposed increase to the building height and density for the two apartment sites at the north-west and north-east intersections of the transit spine collector road and Sandalwood Parkway discussed in the next section of this report, it may be necessary to undertake further revisions to the block plan.

Draft Block Plan Official Plan Amendment:

As outlined in Recommendation 4 of this report, the draft Block Plan Official Plan Amendment prepared by the Landowners Group (see Appendix 1 of this report) is suitable for approval in principle subject to a number of outstanding matters being

addressed to the satisfaction of the Commissioner of Planning, Design and Development. Planning staff intend to forward the final Block Plan Official Plan Amendment to City Council for adoption in early 2011.

The draft Block Plan Official Plan Amendment:

(a) is consistent in terms of content, format and structure with other recently approved Block Plan Official Plan Amendments in other areas of the City (i.e. BramWest and the Credit Valley Secondary Plans); and,

(b) generally reflects the detailed block planning policies, community vision and principles contained in the Mount Pleasant Secondary Plan.

Some of the proposed revisions to the draft Sub-Area 51-1 Block Plan Official Plan Amendment contained in Recommendation 4 are necessary in order to produce a final policy document that reflects the community vision for Mount Pleasant and provides a comprehensive guide to future development, including:

- policy inclusions, revisions or deletions, identified through the Block Plan Studies;
- receipt of final comments on the block plan application; and,
- a Block Plan Official Plan Amendment Schedule that reflects the final Block Plan approved by the Commissioner of Planning, Design and Development.

There are however, a number of aspects of Recommendation 4 to this report that warrant a more detailed discussion as follows.

The Development of the District Retail Designation:

The landowners are proposing to defer the requirement to evaluate the integration of office and medium density residential and high density residential uses within the "District Retail" designation located at the north-east quadrant of Mississauga Road and Bovaird Drive, from the block plan to the zoning by-law approval stage (refer to page 8, subsections (4) and (5) of the draft Block Plan Official Plan Amendment found at Appendix 1).

Staff has no objection to the landowner's proposed policy revision to transfer the requirement to evaluate the integration of medium density and high density residential uses within the "District Retail" designation from the block plan to the zoning by-law approval stage provided. This evaluation will be accompanied by a tertiary plan that provides details with respect to integrating residential and district retail land uses.

Similarly, the landowners are proposing to transfer an analysis of road network connectivity and access to the District Retail site from the block plan to the zoning by-law approval stage (refer to page 8, subsection (6) the draft Block Plan Official Plan Amendment found at Appendix 1 of this report and the draft Block Plan(Figure 2). Staff has no objection to this request, and notes that the Transportation Study and Collector Road Environmental

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Assessment can evaluate a potential east/west collector road connection from the future James Potter Road (realigned Credit view Road) to Mississauga Road (See Recommendation 4 (g) of this report).

It should be noted that the development of the District Retail designation does not preclude:

i. the application of non-standard conditions of draft plan approval to the district retail lands as necessary;

ii. separating the district retail site into various blocks on the associated subdivision plan to thereby necessitate the conveyance of other key features within this area, including an identified storm water management pond and the segment of the Huttonville Creek Natural Heritage System identified as Redside Dace habitat;

iii. evaluating this quadrant of the Mount Pleasant Secondary Plan in relation to the re-development at the north-west intersection of Mississauga Road and Bovaird Drive first identified in the approved Mount Pleasant Secondary Plan Retail/Commercial and Institutional Opportunity and Need Background Study; and,

iv. the approval of the balance of the applicant's subdivision to the north of the CN Rail line (Mayfield 200 Limited et al. (Mattamy Homes) City Files: C04W12.002/21T-10013B) to accommodate the delivery of key community infrastructure such as the transit spine collector road, schools, parks and the natural heritage system.

The consolidated recommendation report pertaining to the Mayfield 200 Limited subdivision, and the other four subdivision applications within the Block Plan Sub-Area 51-1 lands, could also include recommendations around the various issues and outcomes discussed above.

Increased Apartment Density and Building Height:

The landowners propose policies permitting a maximum density of approximately 355 units per net hectare, maximum building heights of 20 storeys and setback requirements in the zoning by-law for two apartment sites within mixed use node 1 that are located at the north-west and north-east corners of the transit spine collector road and the Sandalwood Parkway extension (refer to page 8, subsection (3) of the draft Block Plan Official Plan Amendment found at Appendix 1 of this report and the draft Block Plan(Figure 2)). Although policies in the Mount Pleasant Secondary Plan permit apartments in all four of the mixed use node designations, building heights greater than 6 storeys and density greater than 100 units per net residential hectare require a more detailed analysis and confirmation at the block plan approval stage, including "superior" design through approved Community Design Guidelines and consistency with the goals and objectives of the Mount Pleasant Secondary Plan.

The Planning Policy and Growth Management Section indicate that these proposed policy revisions cannot be supported since they are contrary to the City Council adopted Growth Plan OPA 2010-43. In this respect, the Planning Policy and Growth Management Section notes that the proposed apartment building heights and density is:

- well in excess of that contemplated in the City's Official Plan for lands outside the Urban Growth Centres, identified nodes and intensification corridors; and,

- the apartment sites are not within an identified area of intensification and therefore contravene the City Structure policies in the Official Plan.

In early August, staff met with the owner of the lands which contain the mixed use designations (MMM Group- Primont Homes (Mount Pleasant I) Inc. et al: City Files C04W14.006/21T-100014B as shown on Figure 1 of this report) to discuss preliminary issues and concerns relating to the proposed, density, building height and design of the apartment sites. At this meeting, the owner also provided conceptual drawings for proposed stacked townhouses on another block within their proposed draft plan of subdivision. The proposed stacked townhouses may also exceed the 100 units per net residential hectare requirement in the Secondary Plan. At the conclusion of the meeting, it was agreed that the owner would provide detailed design drawings and cross sections showing the proposed apartments, stacked townhouses or a combination of townhouses and apartments so that staff can determine compliance with the Official Plan and understand the implications in terms of scale, massing and context in relation to both the surrounding mixed use node and some of the other uses and features in the Mount Pleasant Secondary Plan.

Recommendation 4 (e) of this report recognizes a maximum overall density of approximately 120 units per net hectare and a maximum height of 8 storeys as a starting point for further analysis, while enabling some increase in density and building height beyond these thresholds provided that the development proposal addresses the following matters to the satisfaction of the Commissioner of Planning, Design and Development:

- consistency with the City's Growth Plan Official Plan Amendment and other applicable policy objectives of the City's Official Plan;

- design drawings and cross sections that show the scale and massing of the apartments or combined stacked townhouses and apartments in the context of the surrounding mixed use node and other land uses and features in the Mount Pleasant Secondary Plan;

- an evaluation of shadow impacts;

- access and traffic generation;

- zoning requirements including building height (either a maximum height or a building height range), density, FSI and parking; and,

- implementation methods, including potential zoning requirements and/or conditions of draft plan approval to ensure land use compatibility is achieved with respect to building density and height

Increased Convenience Retail Floor Space:

Mount Pleasant Secondary Plan policies enable an increase to the maximum permitted floor area for "Convenience Retail" designations above the 3,700 square metre (40,000 square feet) threshold established in the Official Plan provided that this is justified at the block plan approval stage, that it can be demonstrated that the increase does not have an adverse effect on planned commercial function, and that other matters can be addressed, such as urban design, architecture and site layout.

The landowners are proposing an increase to the maximum permitted floor area for the "Convenience Retail" site at the north-east corner of Sandalwood Parkway and Mississauga Road to permit a total floor area of 5,110 square metres (55,000 square feet). This represents a 1,393 square metre (15,000 square feet) increase above the 3,700 square metre (40,000 square feet) maximum floor area (refer to page 9, subsection (7) of the draft Block Plan Official Plan Amendment found at Appendix 1 of this report and the draft Block Plan (Figure 2). Additional information from the proponent is required in order for staff to evaluate the proposed policy changes and make a final determination. Accordingly, Recommendation 4 (f) of this report requires:

- confirmation that the proposed floor space increase does not impact the planned commercial function for the entire Mount Pleasant Secondary Plan area. This could involve either a letter of opinion from the consultant that prepared the approved Mount Pleasant Secondary Plan Retail/Commercial and Institutional Opportunity and Need Background Study or analysis from another market consultant, both options paid for the landowners. In this respect, it is important to take into consideration any implications for the seven (7) other designated "Convenience Retail" and "Neighbourhood Retail" in the Mount Pleasant Secondary Plan. Furthermore, as confirmed by the Planning Policy and Growth Management Section, additional information is required regarding proposed future uses and the floor space for the proposed anchor;

- the preparation of a concept site plan and site specific design analysis confirming that the proposed site area of approximately 1.8 hectares (4.5 acres) necessary to accommodate the increased convenience commercial floor space is consistent with the Block Plan Community Design Guidelines and compatible with the objectives for the development of the Mixed Use Area 1 node. This is necessary in order to confirm that the convenience retail plaza can be well integrated with the surrounding mixed use node from a site layout and design perspective.

The consolidated recommendation report pertaining to the (MMM Group- Primont Homes (Mount Pleasant I) Inc. et al: subdivision and the other four subdivision applications within the Block Plan Sub-Area 51-1 lands could also include recommendations around the various issues and outcomes discussed above.

Mixed Use Nodes:

The landowners are proposing policy revisions for the various mixed use nodes to clarify their form and function, including building heights and the ability to integrate and develop other land uses within the nodes such as retail or institutional (schools) (refer to page 7, subsection (2) of the draft Block Plan Official Plan Amendment found at Appendix 1 of this report).

The justification for the overall design of the mixed use nodes forms part of the Community Design Guidelines that are still under review. In this respect, section 3.2.4.12 of the Community Design Guidelines suggest a village character for the nodes comprising buildings with ground floor commercial with residential above, but does not include a discussion on buildings of 6 storeys or taller. In addition, the City's Growth Plan OPA directs that buildings outside areas of intensification be limited to 6 storeys. In this respect, Staff is proposing policy language to guide the mixed use nodes found at Recommendation 4 (j) of this report, and to enable ongoing collaboration with the landowners to ensure the success of the mixed use nodes as a defining feature within the Mount Pleasant community. The final policies related to the mixed use nodes would originate from the additional design justification in the final approved Community Design Guidelines, and this would be included in the final Sub-Area 51-1 Block Plan Official Plan Amendment recommended for adoption by City Council.

Growth Management and Developer Cost Sharing Policies:

Staff recommend the inclusion of specific policies within the draft Block Plan Official Plan Amendment to appropriately manage growth and ensure equitable cost sharing practices amongst landowners (see Recommendations 4 (h) and to 4 (i) of this report).

Requirements for Final Block Plan Approval:

In accordance with Recommendation 5 of this report, the following key outstanding issues need to be addressed before the Commissioner of Planning, Design and Development can issue final block plan approval.

Approved Block Plan Studies:

The four block plan studies for Sub-Area 51-1 are currently in circulation for review and comment. These studies relate specifically to transportation, growth management, design, and natural heritage system. Their review and approval will help ensure that the community develops in accordance with the policies, vision and principles contained in the Mount Pleasant Secondary Plan. The approval of the block plan studies will provide

a sound technical foundation upon which to implement Sub-Area 51-1 through the subdivision, zoning and site plan approval processes.

The purpose of each of the four block plan studies is briefly outlined below. For a more detailed description, copies of the draft block plan studies are available upon request from the Planning, Design and Development Department.

Transportation Study and Collector Road Environmental Assessment:

This Study confirms the need to develop a collector road network within the boundaries of the Sub-Area 51-1 block plan lands with a particular emphasis upon the mid block transit spine collector road. The Study contains a comprehensive functional assessment of the proposed collector road network including road cross sections, alignments and intersection treatments. The Study is a continuation and more detailed refinement of the analysis contained in the approved Mount Pleasant Secondary Plan Transportation and Transit Master Plan, and as such, it fulfills the requirements of the Phase 3 and Phase 4 requirements for a Collector Road Environmental Assessment. As noted in the introductory section of this report, the Study was presented, concurrent with the Statutory Public Meeting, at a June 7, 2010 Public Information Centre. The Manager of Long Range Transportation Planning, Planning, Design and Development Department, is taking a lead role in the final approval of the Study and confirming that it meets the Collector Road EA requirements. This Study was received in July 2010 and is currently circulated for comment.

Growth Management Staging and Sequencing Strategy Report:

The purpose of this Study is to outline the staging, timing and delivery of key infrastructure to support the ongoing development of the Sub-Area 51-1 Block Plan lands, namely:

- roads;
- sanitary and water services;
- stormwater management ponds;
- the Huttonville Creek natural heritage system;
- schools;
- parks;
- places of worship; and,
- trails and bike paths.

Recommendation 5 (f) of this report provides details with respect to the key issues that the Study will address. This Study was received in July 2010 and is currently circulated for comment.

Community Design Guidelines:

This Study provides a comprehensive analysis of the physical design of the Sub-Area 51-1 community with particular reference to the key structuring elements that were first approved

by City Council in 2007 and carried forward into the Mount Pleasant Secondary Plan and the Block Plan Concept Plan, including:

- the Huttonville Creek Natural Heritage System;
- roads (with a particular emphasis on the mid block transit spine collector road);
- trails and pathways;
- mixed use nodes;
- integration with the Mount Pleasant Village transit hub/Mount Pleasant GO Station;
- delineation of various neighbourhoods;
- parks and open space;
- special character areas; and,
- commercial and institutional uses.

In addition, the Study provides landscape and built form guidelines and principles. The Study was received in July 2010 and is currently circulated for comment.

Landowner Cost Sharing Agreement:

The Sub-Area 51-1 landowners have appointed a Trustee for the Cost Sharing Agreement. The landowners have advised that the cost sharing agreement is well underway and landowner approval is anticipated in advance of final block plan approval. There are a number of cost sharing related matters that are unique to the Mount Pleasant community that should assist in finalizing the agreement, including: the "Mount Pleasant Village Mobility Hub Infrastructure Funding Strategy – Memorandum of Understanding" that formed part of City Council's February 10, 2010 approval of the Mount Pleasant Secondary Plan; the Growth Management Staging and Sequencing Strategy Report ; and, the Cost Sharing policies found under section 12.4 of the Mount Pleasant Secondary Plan.

Recommendations 4 (h) of this report and Recommendations 5 (h) and 5 (i) address matters with respect to cost sharing.

Integrating the Planning Approvals Process with the EA Requirements for the Collector Road Network:

As noted in the introductory section of this report, Mount Pleasant Secondary Plan policies support the concurrent processing of development applications and integration with the Municipal Class EA for the Collector Road Network. This is achieved through the Mount Pleasant Block 51-1 Transportation Study and Collector Road Environmental Assessment that is currently under review. In this respect, staff has confirmed Recommendation 5 (j) of this report involves the continued integration of both the planning and collector road network processes.

Evaluating Landowner Requests (Heritage Strategy and Traffic Turning Circles):

A Proposed Heritage Strategy for Sub-Area 51-1:

In Spring 2010, the heritage resource known as the James Clark Farmhouse (Clark House) (1930 Wanless Drive) located on the north side of Wanless Drive, east of Mississauga Road, was substantially destroyed by fire. The landowners are in the process of preparing an inventory of the remaining built cultural heritage resource within the Sub-Area 51-1 Block Plan lands, known as the "Hired Hands House" (11157 Mississauga Road), located on the east side of Mississauga Road, north of Wanless Drive. Although the "Hired Hands House" is listed as a Category B resource in the City's Municipal Register of Cultural Resources, it has not yet been assigned a score or value necessary for further evaluation. A demolition permit has also been filed for the vacant "Hired Hands House" by Wanless Developments Inc, out of concern that in light of the situation with the Clark House, it may not be possible to adequately protect and secure the home from future damage, including arson. Details are provided in correspondence from Gagnon & Law Urban Partners Ltd. found at Appendix 2 of this report. The correspondence outlines a proposed heritage strategy for Sub-Area 51-1 involving:

- the use of salvageable materials from the Clark House site in a heritage oriented commemorative feature that could be used in the park within the mixed use area 2 node;

- recognition of the significance of the Clark House in the Sub-Area 51-1 Community Design Guidelines;

- a street named in honour of the Clark family; and,

- a potential financial contribution by the Landowners, and an additional financial contribution for granting of demolition permits for the Clark House and Hired Hands House, both for use in the establishment of any future "Heritage Village" (proposed and under study for the Flower City Campus) that might be endorsed by City Council.

The landowner's heritage strategy is still under evaluation by the Director of the Community Design, Parks Planning and Development Division, the Manager of Urban Design and the City's Heritage Co-ordinator. Recommendation 5 (k) of this report enables a heritage strategy to be developed as a requirement of final block plan approval.

Traffic Turning Circles:

Correspondence from STLA Design and BA Group (the consulting firms involved in the preparation of the previously mentioned Community Design and Transportation Block Plan Studies) is found at Appendix 3 of this report. The correspondence outlines eight (8) separate areas of concern with the integration of traffic turning circles into the final approved block plan, some of which include:

- travel paths and crossings of traffic turning circles that are counter to safe and effective pedestrian usage, in particular regarding the elderly, individuals with disabilities or visual impairments;

- impediments in the design, location and usage of transit stops in a non-standard location such as a traffic turning circle;

- conflicts between vehicles and cyclists;

- difficulties in achieving a compact urban form due to the comparatively large land area required for a traffic turning circle; and,

- sightline issues and maintenance costs require minimal landscaping treatment and therefore these features do not contribute to the overall streetscape.

This correspondence is in circulation for comment and will require a thorough analysis from a planning, transportation, transit, operations, emergency services, and design perspective and the results of this analysis could be included as part of final Block Plan approval.

RESULTS OF THE PUBLIC MEETING:

A special meeting of the Planning Design and Development Committee was held on June 7, 2010 in the Council Chambers, 4th Floor, 2 Wellington Street West, Brampton, Ontario, commencing at 7:00 p.m. with respect to the subject application. Notices of this meeting were sent to property owners within 900 metres of the subject lands in accordance with the *Planning Act* and City Council procedures.

As indicated in Appendix "4", two people were in attendance to speak to the matter, Mr. Tim Aumell, 38 McCaul Street, Brampton, and Mr. Brian Wilson, 10799 Creditview Road, Brampton. The Chair also acknowledged correspondence from Sharyn Vincent, Vincent Planning and Development Consultants Inc., dated June 3, 2010 found at Appendix "5" of this report.

Staff Response:

Mr. Tim Aumell, 38 McCaul Street, Brampton.

At the June 7th meeting, Mr. Aumell questioned the timeframe for the various proposed draft plans of subdivision filed concurrently with the Block Plan application. Mr Aumell was particularly interested in the timing for the construction of the transit spine collector road. Staff advised that construction of the transit spine collector road could commence in the 2012/2013 time horizon and that the Mount Pleasant Block Plan Area 51-1 may take approximately 5 to 10 years before full "build out" is occurs.

As noted in the DISCUSSION section of this report, the approval of the Block Plan Study entitled "Growth Management Staging and Sequencing Strategy Report" is a requirement of final block plan approval. This Block Plan Study will confirm the staging,

timing and delivery of key infrastructure to support the ongoing development of the Sub-Area 51-1 Block Plan lands, including the transit spine collector road. A copy of the draft and final Growth Management Staging and Sequencing Strategy Report, and other pertinent information, could be made available to Mr. Aumell if he wishes to further pursue his interest in this matter.

Mr. Brian Wilson, 10799 Creditview Road, Brampton.

At the June 7th meeting, Mr. Wilson advised that he was pleased that lands at the north-east intersection of the Buick Boulevard extension west of Creditview Road were designated "Low/Medium Density Residential" in the Mount Pleasant Secondary Plan and that a motor vehicle commercial designation was no longer being pursued. Mr. Wilson advised that he was still experiencing difficulties exiting in and out of his property at the south-east intersection of Buick Boulevard and Creditview Road.

As noted in the DISCUSSION section of this report, the approval of the Transportation Study and Collector Road Environmental Assessment is a requirement of final block plan approval. This Block Plan Study will provide a comprehensive functional assessment of the proposed collector road network including road cross sections, alignments and intersection treatments. The Buick Boulevard extension west of Creditview Road will function as part of the Sub-Area 51-1 collector road network. In light of the foregoing, a copy of the draft and final Transportation Study and Collector Road Environmental Assessment, and other pertinent information, could be made available to Mr. Wilson to confirm that adjacent development will not exacerbate his existing access difficulties.

Correspondence from Sharyn Vincent, Vincent Planning and Development Consultants Inc.

Correspondence from Sharyn Vincent on behalf of Norval Farm Supply is found at Appendix "5" of this report. Norval Farm Supply is located on the east side of Mississauga Road, north of Bovaird Drive, abutting the existing CN Rail line crossing at Mississauga Road. The Mount Pleasant Secondary Plan applies a special policy area designation to the Norval Farm Supply lands with section 5.1.3.2 as follows:

"Special Policy Area (Norval Farm Supply)

5.1.3.2 The Norval Farm Supply lands on Schedule SP 51(a) comprise a triangular shaped parcel defined by Mississauga Road and the CNR rail line. Due to access and noise constraints, re-development of these lands are better suited for commercial and/or higher density Residential uses. Re-development of this Special Policy Area will require the submission of an application to amend this Chapter and the Zoning By-law, and be based on various supporting studies to be determined by the City including, but not limited to, demonstrating that noise can be mitigated, appropriate access can be achieved, environmental impacts on the abutting Huttonville Creek corridor can be effectively minimized and that the development can be well integrated with abutting lands. Nothing in this policy section or Chapter prevents the existing permitted agricultural use from continuing, in accordance with the applicable policies of the Official Plan and current zoning for the subject lands."

As outlined in her correspondence, Ms. Vincent has three principal areas of concern:

i. the proposed cul-de-sac access to the section of "District Retail" designation that abuts Norval Farm Supply to the south (See Figure 2 of this report) and difficulties that this might engender with the mixing of residential traffic and with trucks and machinery using the Norval Farm site;

ii. integration between the Regional EA for the Mississauga Road widening, subdivision application processing and development impacts on the existing Norval Farm Supply operations given it's dependency on Mississauga Road in terms of truck traffic and movement of associated machinery; and,

iii. proximity of the existing Norval Farm Supply operations to residential uses and the impacts that that future residents could experience with respect to noise, vibration and air quality.

Recommendation 8 of this report directs staff to work with Norval Farm Supply while continuing to process the Block Plan Official Plan Amendment Application for Sub-Area 51-1 to ensure that Block Plan permissions and/or the subdivision approvals process minimizes any adverse effects and protects their business operations. In this respect, staff will be convening an initial meeting with Ms.Vincent in the early Fall 2010 and key City staff, Regional staff and Mount Pleasant Secondary Plan landowners and their consultants to begin to further scope issues of concern and develop an action plan to address them.

Correspondence Peel Regional Police Association

A letter from the Peel Regional Police Association dated June 23, 2010 is received which requests copies of environmental assessment notices/reports and notice of any public meetings (including agendas and minutes) which pertain to the development of lands surrounding the Peel Regional Police Association property located at 10675 Mississauga Road (located on the east side of Mississauga Road, south of Wanless Drive). Staff will ensure the Peel Regional Police Association is copied and notified in this respect. In addition, staff have met with representatives of Peel Regional Police Association and will continue to engage in ongoing consultation (See Recommendation 9 of this report).

Corporate Implications:

The Mount Pleasant Block Plan and its relationship and integration with the Mount Pleasant Mobility Hub represent an innovative community based on principles of New Urbanism whereby residents are encouraged to walk, bicycle, and use public transit in preference to the automobile. In addition to the importance and uniqueness of the community design elements, and the extensive technical work completed to date, there are important corporate implications related to cost sharing for the Mount Pleasant Infrastructure Stimulus Funding. Accordingly, staff is recommending approval in

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principle of the Block Plan, acknowledging that this milestone allows important technical work to advance in the coming months.

CONCLUSION:

Based on the foregoing analysis and in light of the modified block plan planning approved for the Mount Pleasant Secondary Plan, it is recommended that the Mount Block Plan Sub-Area 51-1 application be approved in principle subject to the recommendations contained in this report.

Respectfully submitted:

Original Signed By

Dan Kraszewski, MCIP, RPP
Director, Development Services

Original Signed By

Adrian Smith, MCIP, RPP
Director, Planning Policy & Growth Management

Original Signed By

John B. Corbett, MCIP, RPP
Commissioner,
Planning, Design & Development

APPENDICES:

Appendix 1: Draft Block Plan Official Plan Amendment for Sub-Area 51-1 of the Mount Pleasant Secondary Plan

Appendix 2: Correspondence from Gagnon & Law- Urban Planners Ltd.

Appendix 3: Correspondence from STLA Design Strategies and BA Group

Appendix 4: Public Meeting Attendance Record

Appendix 5: Correspondence from Sharyn Vincent (Vincent Planning and Development Consultants Inc.)

Appendix 6: Correspondence from Peel Regional Police Association

Appendix 7: Mount Pleasant Secondary Plan, Implementation Principles for the Mount Pleasant Subwatershed Study

Appendix 8: Correspondence from Credit Valley Conservation

Appendix 9: Correspondence from AMEC Earth & Environmental

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Appendix 1: Draft Block Plan Official Plan Amendment for Sub-Area 51-1 of the Mount Pleasant Secondary Plan

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To Adopt Amendment Number OP2006-
to the Official Plan of the
City of Brampton Planning Area

The Council of the Corporation of the City of Brampton, in accordance with the provisions of the Planning Act, R.S.O., c.P. 13, hereby ENACTS as follows:

1. Amendment Number OP2006-____ to the Official Plan of the City of Brampton Planning Area is hereby adopted and made part of this By-law.

READ a FIRST, SECOND and THIRD TIME and PASSED in OPEN COUNCIL, this day of 2010.

SUSAN FENNELL – MAYOR

PETER FAY – CLERK

Approved as to Content:

Adrian J. Smith, MCIP, RPP
Director, Planning Policy and
Growth Management

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AMENDMENT NUMBER OP2006-
to the Official Plan of the
City of Brampton Planning Area

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AMENDMENT NUMBER OP2006-_____
TO THE OFFICIAL PLAN OF THE
CITY OF BRAMPTON PLANNING AREA

1.0 PURPOSE

The purpose of this amendment together with Schedule BP51-1 is to implement the policies of the Official Plan and Chapter 51 of the Mount Pleasant Secondary Plan through the preparation and approval of a Block Plan for Area 51-1.

This amendment to Chapter 51 of the Mount Pleasant Secondary Plan is based on a Block Plan that implements the findings of a number of background component studies completed to address environmental, servicing, transportation, urban design and growth management considerations. The end result is a Block Plan that addresses the principles of sustainability and incorporates the principles of the City's Development Design Guidelines.

2.0 LOCATION

The Mount Pleasant Block Plan Area 51-1 comprises an area of about 518.3 hectares (1,280.75 acres) in North West Brampton, and is bounded by Bovaird Drive West and James Potter Road to the south, Creditview Road to the east, Mayfield Road to the north, and Mississauga Road to the west.

The lands are within the area described as Part of Lots 11, 12, 13, 14, 15, 16 and 17, Concession 4, W.H.S., City of Brampton, Regional Municipality of Peel. The lands subject to this amendment are specifically indicated on Schedule BP51-1 to this amendment.

3.0 AMENDMENTS AND POLICIES RELATIVE HERETO

3.1 The document known as the Official Plan of the City of Brampton is hereby amended by:

(1) by adding to the list of amendments pertaining to Secondary Plan Area Number 51: Mount Pleasant Secondary Plan as set out in Part II: Secondary Plans thereof, Amendment Number OP2006-038

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(2) adding to Part III, the following heading and associated text:

"PART III: BLOCK PLANS
Schedule "H" to this Plan identifies areas for which Block Plans have been prepared or are proposed to be prepared. The following list indicates the documentation which constitutes the Block Plan for those areas which have a Secondary Plan in place."

(3) adding to Part III: BLOCK PLANS, thereof, the following new heading and associated text:

"Area 51: Mount Pleasant Secondary Plan

Part III of Chapter 51-1 of the 2006 Official Plan (Amendment Number OP2006-___) shall constitute the Block Plan for Sub-Area 51-1."

(4) by adding to Part III, BLOCK PLANS thereof, as Chapter 51-1, the following text:

"Chapter 51-1: Sub-Area 1 Block Plan of the Mount Pleasant Secondary Plan

1.0 Purpose

The purpose of this amendment together with Schedule BP51-1 is to implement the policies of the Brampton Official Plan and Chapter 51 of the Mount Pleasant Secondary Plan through the preparation and approval of a Block Plan for Sub-Area 1.

This amendment to Chapter 51 of the Mount Pleasant Secondary Plan is based on a Block Plan that implements the findings of a number of background component studies completed to address environmental, servicing, transportation, urban design, and growth management considerations. The end result is a Block Plan that ensures development of a new community in a manner that addresses the principles of sustainability and incorporates the principles of the City's Development Design Guidelines. This Chapter will constitute the Block Plan for Sub Area 1 of the Mount Pleasant Secondary Plan.

2.0 Location

Sub-Area 1 comprises an area of about 518.3 hectares (1,280.75 acres) in North West Brampton, and is bounded by Bovaird Drive

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West and James Potter Road to the south, Creditview Road to the east, Mayfield Road to the north, and Mississauga Road to the west.

The lands are within the area described as Part of Lots 11, 12, 13, 14, 15, 16 and 17, Concession 4, W.H.S., City of Brampton, Regional Municipality of Peel. The lands subject to this amendment are specifically indicated on Schedule BP51-1 to this amendment.

3.0 Effect of this Chapter and its Relationship to the Official Plan and Mount Pleasant Secondary Plan

Lands subject to Chapter 51-1 outlined on Schedule BP51-1 shall be developed in accordance with the policies of Chapter 51 of Part II and with Schedule SP51(a) and also in accordance with all other relevant policies and schedules of the Brampton Official Plan.

Accordingly, the policies herein are intended to supplement those of the Mount Pleasant Secondary Plan and Official Plan, not to replace or repeat them. An accurate understanding of all the policies pertaining to this Chapter can only be achieved by reading the Official Plan together with Chapter 51.

4.0 Sub-Area 1 Block Plan Principles

The design principles for the Mount Pleasant Block Plan Area 51-1 include:

- Provide for a transit oriented, new urbanism style development based upon design principles which encourage compact built form and a variety of dwelling types, including live-work units;
- Create a safe, attractive and pedestrian-oriented community;
- To provide a mixture of housing types and densities, thereby offering a greater variety of housing to meet current and future market demand;
- Create a distinct and attractive built form which will reinforce a high standard of quality and a positive visual image for this Block Plan Area;

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- Incorporate the City's Flower City Strategy through provision of civic design elements within public areas and at strategic points in the community.

5.0 Block Plan Development Policies

There are various neighbourhoods provided within this Block Plan area that are bordered by major roads or prominent landform features (i.e. CNR Railway Tracks, Natural Heritage System) that provide a natural edge. The neighbourhoods are connected to one another by a network of roads and pedestrian systems that provide safe and convenient access throughout the community supported by the following policies:

5.1 Schedule BP51-1 illustrates the design attributes of the Block Plan Area that addresses and implements the land use designations and policies of the Mount Pleasant Secondary Plan. Minor adjustments and relocations of the community features and infrastructure shown on Schedule BP51-1 can be made without an Official Plan Amendment as long as the general intent and policy direction of the Mount Pleasant Secondary Plan are maintained.

5.2 Live-work units shall be permitted in the Medium Density Residential Designation in appropriate locations provided that matters of access, parking, urban design and land use compatibility are addressed at the subdivision stage of approval.

5.3 The lands located south of the CNR Right-of-Way bound also by Mississauga Road, Bovaird Drive West and James Potter Road shall be approved for a range of commercial, Stormwater management and Open Space Uses, as well as a Special Policy Area associated with the Norval Farm Supply. Development of these lands shall be in accordance with the applicable policies from the Mount Pleasant Secondary Plan.

5.4 Prior to the registration of the first Draft Plan of Subdivision in the Block Plan Area, a Developer Cost Sharing Agreement shall be executed. The Cost Sharing Agreement shall provide for the early delivery of community use lands (such as parks, arterial and collector roads, community entrance or gateway features, and bridge

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crossings). Final development approvals will be withheld until this Agreement is executed.

5.5 Prior to Draft Plan Approval of any subdivision in Block Plan Area 51-1, the Region of Peel shall confirm that municipal water and sanitary sewer will be made available at the time the City is ready to issue an occupancy permit.

5.6 All development applications submitted within the boundaries of Block Plan Area 51-1 shall conform to the approved recommendations of the Environmental Site Assessment Report.

5.7 All development applications submitted within the boundaries of Block Plan Area 51-1 shall conform to the approved Growth Management Report, which shall establish the specific detailed approach for matching development with required internal and external infrastructure such as roads, parks and services.

3.2 The document known as the Mount Pleasant Secondary Plan, being Chapter 51 of Part II of the City of Brampton Official Plan is hereby further amended:

(1) by amending Section 5.0, Land Use Policies, under Section 5.1.2.1, Residential – General Provisions, Low and Medium Density Residential thereof, by amending Section 5.1.2.1 ii):

"A maximum density of 36 units per net residential hectare (15 units per net residential acre) shall be permitted;"

(2) by amending Section 5.2, Mixed-Use, by amending Section 5.2.1.3 under the heading General Provisions:

"Buildings fronting onto Arterial Roads and Collector Roads within Mixed-Use Areas shall range in height from 3 to 6 storeys. Building heights within a "Convenience Retail", "Neighbourhood Retail", Mixed-Use Area, or School designation may be less than 3 storeys. Buildings taller than 6 storeys shall be permitted without the need for an amendment to the Official Plan or this Chapter, provided that this is justified at the Block Plan Stage through approved Community Design Guidelines. One (1) and two (2) storey buildings are permitted throughout the remainder of the Mixed-Use Area."

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(3) by amending Section 5.2, Mixed-Use, by amending Section 5.2.1, General Provisions thereof, by adding the following policy as Section 5.2.1.9:

"Lands located on the north side of Sandalwood Parkway, both east and west of the Transit Spine Collector Road will be zoned to allow for a variety of uses and densities consistent with the development objectives of the Mixed-Use Areas. A maximum density of approximately 355 units per net hectare (144 units per net acre) and a maximum height of 20 storeys for apartment buildings will be provided for in the Zoning By-law in addition to setback requirements."

(4) by amending Section 5.3, Commercial, by amending Section 5.3.2, District Retail thereof, by amending policy Section 5.3.2.2:

"Notwithstanding Section 5.3.2.1, major freestanding office development shall be permitted in the District Retail designation based on planned transit and transportation infrastructure and the development of the Mount Pleasant GO Station as a mobility hub. The extent of office development shall be further refined at the Zoning By-law Approval Stage, including but not limited to, FSI, building height, floor area, the type of office uses and built form.

(5) by amending Section 5.3, Commercial, by amending Section 5.3.2, District Retail thereof, by amending policy Section 5.3.2.3:

"Notwithstanding Section 5.3.2.1, Medium Density Residential, development in accordance with Section 5.1.3, as well as High Density Residential development in accordance with general provisions of Section 4.1.1 of the Official Plan shall be permitted in the District Retail designation without the need for an amendment to the Official Plan or this Chapter, provided that this is consistent with the goals and objectives of the Secondary Plan and approved by Council as part of the Zoning By-law approval process.

(6) by amending Section 5.3, Commercial, by amending Section 5.3.2, District Retail thereof, by amending policy Section 5.3.2.5:

"Road network and access required to accommodate travel demand in and associated with the "District Retail" designation shall be explored and confirmed, with respect to demonstrating and not precluding the ability of achieving future road network connectivity, at the Zoning By-law Approval Stage.

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(7) by amending Section 5.3, Commercial, by amending Section 5.3.4, Convenience Retail thereof, by adding the following policy as Section 5.3.4.3:

"Notwithstanding Section 4.2.11 of the Official Plan, the Convenience Retail designation at the north east corner of Sandalwood Parkway and Mississauga Road, shall have a maximum floor area of 5,110 square metres (55,000 square feet)."

(8) by amending Section 12.0, Implementation, Section 12.1 General Provisions thereof, by amending Section 12.1.6 with the addition of the following to the end of the Section:

"Applicants will be allowed to register the Plan of Subdivision in phases provided that the relevant Draft Plan of Subdivision conditions are satisfied for each phase."

(9) by amending Schedule M to Official Plan Amendment OP#2006-038, Schedule SP51(a), Mount Pleasant Secondary Plan Area No. 51 by:

"Relocating the Place of Worship site located on the Peel Regional Police Association Special Policy Area to the north west corner of Sandalwood Parkway West and Creditview Road."

Approved as to Content:

Adrian Smith, MCIP, RPP
Director, Planning Policy and Growth Management

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SCHEDULE BP-51-1
MOUNT PLEASANT SECONDARY PLAN AREA
BLOCK PLAN AREA NO. 51-1
CITY OF BRAMPTON

P.N.: 03.566.00	APR. 29, 2010
File No. 566-SCHEDULE_BP-51-1	Scale: N.T.S.

GAGNON & LAW
21 Queen Street East, Suite 500
Brampton, Ontario, Canada L6W 3P1
Phone (905) 796-5790
Fax (905) 796-5792

Appendix 2: Correspondence from Gagnon & Law- Urban Planners Ltd.

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GAGNON & LAW
URBAN PLANNERS LTD.
Established 1990

Principals
Michael Gagnon, B.E.S., M.C.I.P., R.P.P.
Lily Law, B.E.S.

July 12, 2010

Our File:
PN.98.566.00 Heritage

The Corporation of the City of Brampton
Planning, Design & Development
2 Wellington Street West
Brampton, Ontario
L6Y 4R2

Attention: John Corbett, Commissioner, Planning Design & Development

Re: Mount Pleasant Secondary Plan
Proposed "Heritage Strategy", Block Plan Area 51-1
1930 Wanless Drive (Clark Farmhouse)
11157 Mississauga Road (Hired Hands House)

Dear John,

Pursuant to your meeting with Silvio Guglietti, Tony Guglietti and Mark Jepp on June 21, 2010, we are corresponding with you regarding the heritage obligations set out in the Mount Pleasant Secondary Plan and ISF Memorandum of Understanding. We wish to take this opportunity to confirm with you the proposed "Heritage Strategy" for application within Block Plan Area 51-1.

1930 Wanless Drive

The Mount Pleasant Secondary Plan, Block Plan Area 51-1 Landowners, and in particular Walness Developments Inc. (Walness) are saddened by the unfortunate loss of the James Clark Farmhouse ("Clark House"), located at 1930 Wanless Drive, to arson. Despite all of Walness' prudent and reasonable efforts to secure the Clark House over the course of approximately 12 months, nothing could be done to save it. Following the arson which substantially destroyed and weakened the Clark Farmhouse, at the urging of the City's Emergency Services Department, Walness filed a Demolition Permit.

11157 Mississauga Road

According to the "Municipal Register of Cultural Heritage Resources – Heritage Listing", 11157 Mississauga Road is listed as Category B; no score has been assigned to this property.

21 Queen Street East, Suite 500 • Brampton, Ontario, Canada L6W 3P1

Phone: (905) 796-5790 • Fax: (905) 796-5792 • Website: www.gagnonlawurbanplanners.com

Walness has filed a separate Demolition Permit for 11157 Mississauga Road, known as the "Hired Hands House". This Demolition Permit has been filed out of a concern related to the potential inability of Walness to secure and protect this home from future potential damage; including arson. According to the Demolition Permit Application, Walness has indicated that:

> "An unsafe condition exists. The building is unsafe if the building is structurally inadequate or faulty for the purpose for which it is used or in a condition which could be hazardous to the health or safety of persons in the normal use of the building".

Proposed Strategy

Acting proactively and with a desire to meet the obligations set out in the Mount Pleasant Secondary Plan, we wish to advance a sound and appropriate Heritage Strategy for Block Plan Area 51-1. In advancing the proposed Heritage Strategy, please recognize and consider the following:

- The "Clark House" and the "Hired Hands House" were and are essentially located in the middle of a mixed-use node within the Mount Pleasant Secondary Plan Area.
- In order to preserve the location of the former "Clark House" and the "Hired Hands House", it would be necessary to relocate elements of the road network and associated node land uses.
- There are grading challenges associated with the preservation of the heritage resources in their current locations.
- Walness is preparing an inventory/assessment of the "Hired Hands House" which will be filed shortly.
- The municipality is considering a Fall 2010 recommendation which would see the establishment of a "Heritage Village" to be located within the Flower City Community Campus lands.
- The timing of the recommendation for the establishment of a "Heritage Village" coincides with the timing of the Recommendation Report for Block Plan Area 51-1.

As discussed, the following are the key elements of the proposed Heritage Strategy:

1. The Clark Family would be recognized in a unique, heritage oriented commemorative feature to be located within the Town Square, located north of Wanless Drive, and located within the mixed-use node.
2. Bricks and other materials as salvageable and appropriate would be used to create the unique, heritage oriented commemorative feature.

3. The Block Plan Area 51-1 Community Design Guidelines will specifically address the importance and significance of the "Clark Homestead".

4. A Street in the immediate local area of the "Clark Homestead" could be named in honour of the Clark family.

5. A Landowner Group financial contribution (a mutually agreeable amount yet to be determined) would be made to the City of Brampton for use in connection with the development of the "Heritage Village" proposed within the Flower City Community Campus.

6. Demolition Permits would be granted in exchange for a financial contribution (seed capital) to the "Heritage Village".

We trust this accurately reflects your discussion with the Landowners Group and we are pleased to meet with you at any time to discuss the implementation of this strategy.

Yours truly,

Original Signed By

Michael Gagnon, B.E.S., M.C.I.P., R.P.P.
Managing Principal Planner

cc: Block Plan Area 51-1 Landowners

Appendix 3: Correspondence from STLA Design Strategies and BA Group

Design Strategies

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MEMORANDUM

A Division of
NAK Group of Companies

355 Adelaide Street West
Studio 300
Toronto, Ontario
Canada M5V 1S2

Tel: 416.340.8100
Fax: 416.340.7100
Email.nak@nak-design.com

To: Dan Kraszewski – City of Brampton
Neal Grady – City of Brampton

From: John Richard – STLA Design Strategies
Paul Sarjeant – BA Group

Date: June 14, 2010

Subject: **Roundabout Issues for Proposed Mount Pleasant Community**

Project No.: 1-09105

In response to the issue of roundabouts and their potential for integration within the Mount Pleasant Community, Block Plan Area 51-1, STLA Design Strategies and BA Group offer the following urban design rationale for your consideration.

As we all know, Mount Pleasant will be designed and developed as a sustainable community in accordance with the principles of a Transit-Oriented Development (TOD). It will emphasize and establish those elements that will help create an innovative, walkable, transit-supportive community with strategic cycling connections, in an urban, compact form with mixed-uses and a variety of housing types and densities. It is assumed that any consideration for the integration of roundabouts would likely be in relation to the multi-modal Transit Spine Road, as it is the central link connecting all neighbourhoods (including the mixed-use nodes) within the community. It is our belief that integrating one or more roundabouts in this context is not advisable and inconsistent with the key principles that were adopted at the outset of the community design process and continue to be critical drivers to the community vision today. The following are some of our concerns with roundabouts:

1. The chief benefit of a roundabout is its ability to keep traffic moving, which is at odds with the needs of pedestrians who want to cross. Vehicular flow is maintained by way of "Yield" control rather than "Stop" control. This is not compatible with providing pedestrian connections, and runs counter to what we are trying to achieve with a "walkable" community.
2. The crosswalk is pushed further away from the intersection, creating travel paths that are longer and less convenient for pedestrians, which is a particular concern for the elderly and those with disabilities or visual impairments.
3. Continuous vehicular flow can result in somewhat higher speeds and a corresponding increase in pedestrian risk, both real and perceived for a scale of road similar to the Spine Road. Pedestrians are required to yield to car traffic and, without the presence of unambiguous "Stop" control signs or lights, (i.e. by use of a roundabout), many pedestrians feel uncomfortable manoeuvring through traffic to cross, particularly during peak periods.
4. From a bus transit perspective, passenger drop-off/pick-up is in non-standard locations, typically away from the intersection, which is less convenient to transit riders. This is a concern since the strategy for this and any other TOD community is to encourage transit ridership as much as possible through convenient connections, in order to reduce car usage. Furthermore, the need to design the Spine Road (and any associated roundabouts) so as to maintain relatively high bus speeds is at odds

Design Strategies

MEMORANDUM

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with the need to design the roundabouts so as to slow traffic down to minimize the risk of vehicle / pedestrian collisions.

5. Cycling connections through an intersection are made less safe with roundabouts, particularly when cars could be negotiating right-turn movements at a greater rate of speed than with standard intersections. Furthermore, the lack of stop or yield control for vehicles leaving the roundabout, coupled with the broader turning radii for the outbound turns, means that the opportunities are increased for misunderstandings and conflicts between vehicles and bicycles.
6. The major intersections within Mount Pleasant are characterized by mixed-use nodes, a compact urban environment with a greater density of people and a diversity of uses. Buildings will have reduced setbacks and a strong orientation with the street. The significantly expanded area required for a roundabout, as compared with a typical intersection, would be at odds with this compact, urban form proposed for these community junctions.
7. Roundabouts are often visualized as substantially planted, green 'oasis' features that contribute a positive visual element to the surroundings. In reality, due to sightline issues and maintenance requirements (snow storage, salt spray, vegetation upkeep), roundabouts are typically treated with a large amount of paving around its perimeter and less substantial planted groundcover or low shrubs in the centre. The result is an island that appears expansive in size, but contributes little to the overall streetscape environment. Endeavours to enhance this level of treatment are often limited by municipality's ability to provide the necessary higher maintenance commitment.
8. Although there are situations where roundabouts may be appropriate to a community design, Mount Pleasant represents a unique example where the distinct, identifiable design character is achieved through several special features, including the urban mixed-use nodes, the Spine Road, a robust natural heritage system, extensive pedestrian and cycling connections and a high level of focal points.

Therefore, our position is to advise against the integration of roundabouts within the Mount Pleasant Community, particularly in relation to the Transit Spine Road, as it runs contrary to the principles of transit and pedestrian oriented development that have guided the project from the start.
Please note that the subject of roundabouts on collector roads will be addressed more fully in the Transportation Study currently being prepared by BA Consulting Group in support of the community.
Should you have any questions with respect to the above, please do not hesitate to contact me.

Regards,

John Richard

Design Strategies

F7-54

MEMORANDUM

A Division of
NAK Group of Companies

355 Adelaide Street West
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Canada M5V 1S2

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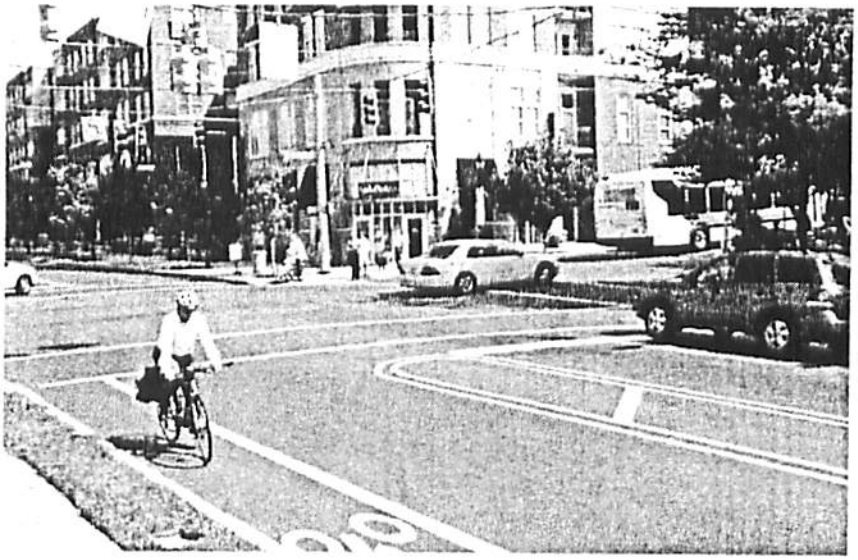
Email:nak@nak-design.com

As an appendix to this memo, the following are photo examples of a street that relates to the conceptual road character and configuration of the Spine Road we are proposing for the Mount Pleasant Community.



APPENDIX '4'
PUBLIC MEETING ATTENDANCE RECORD
June 7, 2010
(Block Plan Sub-Area 51-1 (Mount Pleasant Secondary Plan) City File: BP 51-1.001)

Members Present: Regional Councillor G. Gibson – Wards 1 and 5 **(Chair)**
Regional Councillor P. Palleschi – Wards 2 and 6 **(Vice-Chair)**
Regional Councillor E. Moore – Wards 1 and 5
Regional Councillor J. Sanderson – Wards 3 and 4
Regional Councillor G. Miles – Wards 7 and 8 (arrived at 7:04 p.m)
Regional Councillor J. Sprovieri – Wards 9 and 10
City Councillor J. Hutton – Wards 2 and 6
City Councillor B. Callahan – Wards 3 and 4
City Councillor S. Hames – Wards 7 and 8 (arrived at 7:10 p.m)
City Councillor V. Dhillon – Wards 9 and 10

Members Absent: **nil**

Staff Present: **Planning, Design and Development Department**
J. Corbett, Commissioner, Planning, Design and Development
A. Smith, Director, Planning Policy and Growth Management
D. Kraszewski, Director, Planning and Land Development Services
M. Won, Director, Engineering and Development Services
K. Walsh, Director, Community Design, Parks Planning and Development
P. Snape, Manager, Development Services
A. Parsons, Manager Development Services
D. Waters, Manager, Land Use Policy
N. Grady, Development Planner
R. Nykyforchyn, Development Planner
C. LaRota, Policy Planner

Corporate Services Department
M. Rea, Legal Counsel
E. Evans, Deputy Clerk
C. Urquhart, Legislative Coordinator

Members of the Public Attending: Mr. Tim Aumell, 38 McCaul Street, Brampton.
Mr. Brian Wilson, 10799 Creditview Road, Brampton

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Appendix 5: Correspondence from Sharyn Vincent (Vincent Planning and Development Consultants Inc.)

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VINCENT

PLANNING
+
DEVELOPMENT
CONSULTANTS
INC.

408 ONTARIO ST.
TORONTO
ONTARIO
M5A 2W1

T. 416.956.7722
F. 416.956.7720

City of Brampton
2 Wellington Ave
Brampton
L6Y 4R2

June 3, 2010

ATTENTION **Peter Fey**
City Clerk

Re Proposals under consideration by the Planning, Design & Development Committee with respect to a series of applications filed to Amend the Zoning By-law and Proposed Draft Plan of Subdivision Sub-Area 51-1 within the Mount Pleasant Secondary Plan (Files C04W12.002 21T-10013B and BP51-1.001- WARD 6)

VINCENT PLANNING + DEVELOPMENT CONSULTANTS INC are the authorized agent for Maple Farm Supply, also known as Norval Farm Supply located in the Mount Pleasant Secondary Plan Area. The triangular site is located immediately south of the existing CNR rail line and has frontage along, and a single access to, Mississauga Road. The current operation provides farm supplies and services to the agricultural community. During the growing season from April to November and part of December, daily activities at the site commencing at 7 am continuing until 10pm, typically involve on average 70 to 90 trucks and farm vehicles moving in and out of the site via Mississauga Road. For the balance of the year, grain is shipped from the site at various times over the day between 7am and 6pm. During harvest time, an additional 8 to 12 transport trailer loads of grain are shipped out of the site daily. All shipping and receiving is dependent upon the single access to Mississauga Road.

The Block Plan Concept Plan presented by abutting landowners for consideration by the City, appears to assume a grade separation potentially eliminating the current access and proposes access being provided to the subject lands via a cul de sac shared with the Mattamy development parcel abutting the subject lands to the south and having frontage along Mississauga Road. Maple Farm Supply has not been consulted on this alternate and shared access proposal, which for obvious reasons raises concerns about the desirability and compatibility of the future co-mingling of passenger vehicles with the trucks and machinery characteristic of the existing operation.

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While the owners are aware that the Region has initiated the Mississauga Road EA, the recommendations of which seem to be considerably lagging behind the City's consideration of the above cited Plans of subdivision, the owners remain concerned about development impacts on the existing operations given the singular dependency on Mississauga Road for a not insignificant volume of truck and farm vehicle traffic , and are similarly concerned about in particular, the proximity of proposed residential uses given the industrial nature of the existing use. Maple Farm Supply have retained consultants to document the current activities, but are advised by City staff that, to date no traffic, noise, vibration or air quality studies have been submitted by the development proponents to demonstrate that the Maple Farms operation will not be negatively impacted by competing volumes of traffic on Mississauga Road, or by potential incompatibility issues arising from the proximity of new sensitive land uses. As members of Committee will recall, the approved designation and current zoning of the Maple Farm Supply lands recognize and permit the current operation, and any proposal for abutting or proximate land uses must take into consideration the operational aspects of the current business.

Through the submission of this correspondence, Maple Farm Supply and agents are formally submitting concerns with the proposals under consideration and are requesting notice of any actions by the City or the proponents with respect to the land use permissions affecting the lands subject of the applications cited in this letter and the lands located to the south of the CNR line.

Yours truly

VINCENT PLANNING + DEVELOPMENT CONSULTANTS INC
Sharyn Vincent

Original Signed By

Cc Maple Farm Supply
M Romanin
John Corbett City of Brampton

Appendix 6: Correspondence from Peel Regional Police Association

Option 2A - Land Exchange Concept

F7-60

Peel Regional Police Association | 10675 Mississauga Road | Brampton, ON L7A 0B6
Phone: 905-846-0615 | Fax: 905-846-0649 | E-mail: admin@peelpa.on.ca | www.peelpa.on.ca

June 23, 2010

Dan Kraszewski, MCIP, RPP, OALA
Director, Development Services
Planning, Design and Development
City of Brampton
2 Wellington Street West
Brampton, ON L6Y 4R2

Dear Sir:

Reference: Mount Pleasant Block and Secondary Plan

Please be advised our organization requests that we be noted as an interested party in relation to the above. We request copies of any environmental assessment notices/reports, notice of any public meetings along with copies of the agendas and minutes in relation to development of the area surrounding our property.

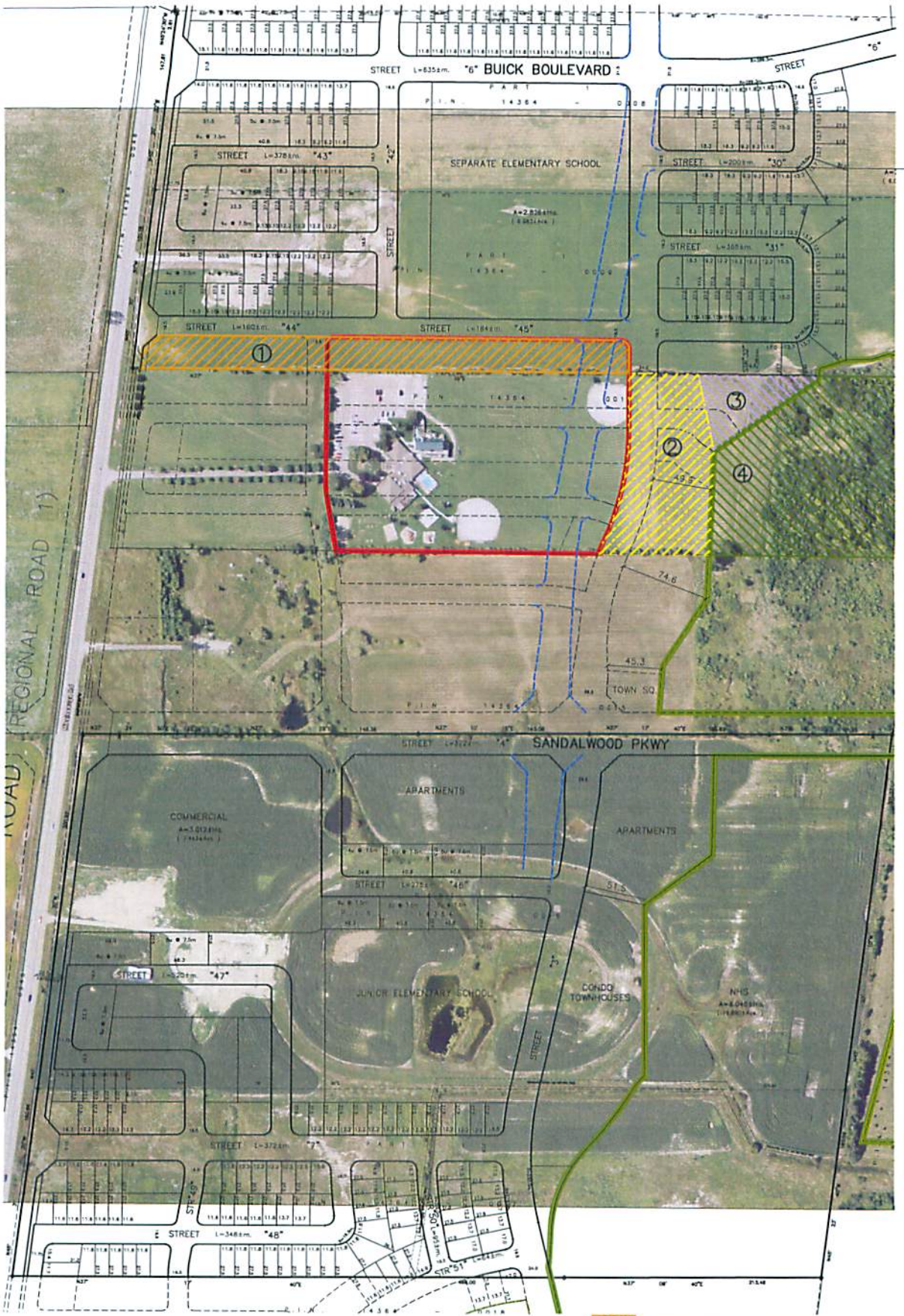
If any further information is required to ensure that we are notified of land development activities affecting our property, please do advise at the earliest opportunity.

Sincerely,

PEEL REGIONAL POLICE ASSOCIATION

Lynn Dobson
Chief Administrative Officer

F7-61



OPTION 2A

493DES22.dwg

Appendix 7:

Mount Pleasant Secondary Plan
Implementation Principles for the Mount Pleasant Subwatershed Study

F7-63

MOUNT PLEASANT SECONDARY PLAN
APPENDIX ....

IMPLEMENTATION PRINCIPLES FOR THE MOUNT PLEASANT SUBWATERSHED STUDY

November 24, 2009

This document forms an Appendix to the Mount Pleasant Secondary Plan and is to be read as part of the Mount Pleasant Secondary Plan and reflects agreements reached on October 29, 2009, November 10, 2009, November 17, 2009 and November 24, 2009 after meetings involving the City of Brampton, Credit Valley Conservation, Ministry of Natural Resources and the Mount Pleasant Landowners' Group. This Appendix is to be read in conjunction with attached Schedules A, B and C. It is the intention of the parties that this Appendix is to form an integral part of the Mount Pleasant Secondary Plan and that the items identified in the Appendix shall be fully incorporated into the Mount Pleasant Secondary Plan.

1. **Natural Heritage System** - The Secondary Plan Natural Heritage System (SPNHS) is shown on the attached Schedule A. It forms part of the Second Generation (2G) Land Use plan to be tested in the second round of the Mount Pleasant Subwatershed Study (SWS) Phase 2 impact assessments. It is expected that the Phase 2 impact assessment results will support the SPNHS (Schedule A). If so, no further SWS impact assessment is required and the SWS Phase 3 report will be prepared. However, if the SWS Phase 2 impact assessments recommend major changes to the SPNHS, additional rounds of testing will be completed as part of the SWS. NOTE: This document also refers to a "final Natural Heritage System (final NHS)" which will be reflected in the SWS and Environmental Implementation Reports (EIRs) and which may or may not be the SPNHS.

   The SPNHS includes the protection of woodlands and wetlands, channel relocation/realignment/lowering, restoration and wetland creation areas as shown on Schedule A. All areas outside of the final NHS are fully developable and not subject to any additional setbacks or restrictions. Within the SPNHS:

   a) Buffers are included in the SPNHS as shown on Schedule A. Grading in buffers is acceptable where necessary to maintain drainage/water balance to environmental features, to accommodate trails or Low Impact Development (LID) (e.g., dry swales, bioretention swales, etc.), or to accommodate minor activities related to mounding for topographic diversity, topsoil enhancement and/or adjacent site grading.

   b) Channel widths are shown on Schedule A. East Huttonville Creek widths are fixed subject to confirmation through the SWS Phase 2 impact assessment. Fletcher's Creek channel widths are minimums with minor refinements expected through the Environmental Implementation Report (EIR) process on the basis of the greater of: the fisheries setback; meander belt allowance; Regional Storm storage/conveyance requirements; and, 6 m top of bank setback (equivalent to provincial erosion allowance). Notwithstanding the above, a linkage between the large woodland south of Mayfield Drive west of McLaughlin Road southerly to the smaller woodland north of Wanless Drive will be 60m in total width including the

relocated Fletcher's Creek channel in this location, subject to hydrology and hydraulic requirements.

c) Within the East Huttonville portion of the SPNHS, the extent of habitat enhancement and wetland creation is to be implemented as per the concepts/principles illustrated on the Landowners' Group vignettes dated March 2009 (Schedule B attached) and includes other concepts such as natural channel design, habitat requirements for Redside Dace, etc. Comparable habitat enhancements will be implemented in the Fletcher's Creek subcatchments where channels are realigned and/or lowered. Implementation and additional design details will be established at the EIR stage (e.g., actual species for planting, size of plantings, phasing of development, etc.).

d) Buffers will be allowed to naturally regenerate except in areas where the buffer is disturbed and/or requires enhancement or mitigation (e.g. trails, LIDs, grading, etc.), in which case restoration plans will be prepared through the EIR process to the satisfaction of the City and also, in the case where regulatory approvals are required, to the satisfaction of CVC.

e) The City and Landowners' Group agree to add the area highlighted as Area H on Schedule A to form part of the SPNHS. Planting or restoration in this area will not be done by the City of Brampton or the Mount Pleasant Landowners' Group, but may be done by others and/or allowed to occur naturally.

f) Channel relocation and lowering is required to permit the development of the Mount Pleasant lands. It is expected to have minimal impact on the water table. The degree of lowering will be confirmed, refined or removed if needed following the completion of the SWS Phase 2 impact assessment.

g) Trails will be accommodated in appropriate areas in the SPNHS. Trail locations are to be confirmed through the EIRs.

h) The Ministry of Natural Resources will designate Provincially Significant Wetlands (PSWs) within the Mount Pleasant Secondary Plan area on the basis of the SPNHS (Schedule A) and will not preclude works, including site alteration, within PSWs specifically designed to enhance the wetland feature, wetland water balance, or required to implement the final NHS as refined through the EIRs.

i) The Mount Pleasant Secondary Plan and all future applications within the Secondary Plan will be evaluated on the basis of the agreed upon final NHS, the approved SWS and EIRs, and the policies and guidelines in effect as of the date of this document. This does not preclude the application of future new legislation and/or regulations and related implementation directions.

2. **Stormwater Management** – With respect to the Stormwater Management (SWM) concept which is to be further detailed through EIR work:

a) SWM facility locations/numbers are shown on Schedule A. Facility geometry is conceptual only; actual geometry, orientation, temperature mitigation measures and number of facilities will be determined through the EIRs.

b) SWM facilities are acceptable in outer portions (30m) of the 100m channel and outside of the stable top of slope in the SPNHS north of the CNR and south of the pipeline.

c) Regional Storm on-line storage is approved in principle subject to the SWS Phase 2 impact assessment.

d) LID requirements are to be met primarily through measures such as utilization of increased topsoil depths in appropriate locations. Other appropriate methods may also be determined through the SWS, EIR, and Block Plan processes, but require approval by the City in consultation with CVC. Subsequent to the Block Plan approval, further regulatory approvals may be required from the CVC to implement LID measures.

e) Drainage diversions as discussed on November 3, 2009 with Philips, CVC and the Mount Pleasant Landowners' Group representatives are to be modeled as a component of the SWS Phase 2 impact assessment. Provided that modeling results are acceptable, it will be approved in principle and further refined at the EIR stage to identify specific mitigation and SWM measures to be implemented.

f) On-site SWM (e.g., parking lot storage, rooftop storage) outside the final NHS is permissible.

3. **CFCP** – A Comprehensive Fisheries Compensation Plan (CFCP) will be completed and submitted for approval concurrent with the preparation of Phase 3 of the SWS and the EIRs during the Block Plan process. The CFCP will be a free-standing document with a separate submission and approval process.

4. **Drainage Density** – All drainage density requirements, as set out in the hierarchy by Parish Geomorphic have been met based on calculations presented in the Stonybrook letter dated July 27, 2009 and Parish Geomorphic's acceptance of same, but are subject to CVC's review/acceptance. Further assessment of drainage density calculations at the EIR stage is not necessary. However, further assessment at the EIR stage will address how and where the hierarchy of surface drainage features will be provided and will, as much as possible, use methods and locations of greatest benefit to the environment as identified in the hierarchy.

5. **Roads** – Schedule A conceptually illustrates the location of new road crossings of the SPNHS. Road crossings and designs will be confirmed through the Sandalwood Parkway Environmental Assessment and other Integrated Planning/Environmental Assessment(s), where necessary, to be completed as part of the Block Plan process. Spans for road crossings will be designed to address fluvial considerations including watercourse form and functions (not spanning meander belt) and accommodate conveyance and storage of Regional Storm flows, where appropriate, to provide flood free road crossings, and wildlife passage as appropriate. EIR work with respect to road designs shall address wildlife passage for large mammal movement where appropriate. Design considerations will include road signage, road speed, warning lights, fencing, clear passage and/or other measures to accommodate movement across roads.

6. **Implementation** – With respect to the design, approval and implementation of the final NHS:

a) Timelines for approval – See attached Schedule C (Work Plan and Schedule) regarding the nature and timing of approvals. All parties will use best efforts to work within this timeline to process development applications and permits

recognizing that an EIR will not be submitted until the SWS Phase 3 report is submitted. Should there be major issues with SWS Phase 2 impact assessment such as diversions or lowerings, Schedule C would have to be renegotiated.

b) Groundwater monitoring wells and piezometers, where they can be maintained after development, will be available to CVC for long term monitoring. All of the data collected by the Landowners' Group will also be provided as input to the CVC's long term monitoring program. Monitoring requirements will be set out in Phase 3 of the SWS.

c) The City will provide CVC all requisite data, methodologies, assumptions and modeling results from the SWS Phase 2 impact assessments of the SPNHS and subsequent versions of the SPNHS should they be necessary.

d) All parties will review the 2G Plan SWS Phase 2 impact assessment results upon release and will provide an immediate determination of whether the impacts are major or minor using an all agency workshop. Initial comments from all parties will be provided within 30 days following the workshop.

7. Permitting Requirements

a) In context of the urbanizing Mount Pleasant Secondary Plan area, the final NHS demonstrates an environmental benefit and will form the basis for all permitting requirements.

b) The final NHS will be implemented in a coordinated manner through several phases as defined through the Block Plan/EIR process. The final NHS will be conveyed to the City in several phases. Provided that plans of subdivision are consistent with approved EIRs, CVC will provide draft plan conditions, clearances and permits as soon as possible.

c) The implementation of the warm water fisheries window (i.e. July 1st to March 31st) shall be applied to all final NHS components including grading, channel realignment, lowering, crossings, restoration/enhancement and SWM for the portion of the East Huttonville Creek system lying to the north of the pipeline right-of-way, and for Fletcher's Creek (west, central and east). For the portion of the East Huttonville Creek lying between the pipeline right-of-way to the north and the limit of the Secondary Plan area to the south, the Redside Dace timing window shall be applied (July 1st to September 15th). Requests for extension(s) to the Redside Dace timing may be made and will be reviewed by MNR where an extension would reduce the overall construction period to minimize potential construction impacts to fish habitat.

d) Multiple, staged permits may be issued by the CVC (and MNR if needed) to accommodate implementation phasing of the final NHS prior to issuance of complete, final NHS permits. EIRs shall address final NHS implementation phasing.

8. Not Precedent Setting

a) It is understood that the process for arriving at the Mount Pleasant Secondary Plan is not intended to set a precedent for CVC to follow. CVC will expect that

future secondary planning initiatives will conform to prevailing City of Brampton Official Plan policies (i.e. that the Secondary Plan and related servicing and infrastructure plans will be directed by a substantially advanced comprehensive Subwatershed Study, to the satisfaction of CVC and the City, and an agreed upon Natural Heritage System). This does not preclude integrated Environmental Assessments.

b) It is understood that the proposed characteristics and/or modifications to the natural heritage features and areas for this plan are based on specific characteristics of the Mount Pleasant Secondary Plan area. These include stream lowering, stream realignment, drainage diversion, buffer widths and modifications to wetlands and other natural features. It is understood that these modifications do not set a precedent for any future planning considerations and permitting requirements by CVC and that development areas must each be planned according to their own specific natural characteristics and features.

 F7-68

Appendix 8

Correspondence from Credit Valley Conservation

F7-69

August 17, 2010

City of Brampton
Planning, Design and Development Department
2 Wellington Street West
Brampton ON L6Y 4R2

Attention: Michael Won and Ron Scheckenberger

Dear Michael / Ron,

Re: Response to CVC Comments on HSPF Models- AMEC July 12, 2010; and Refined Analysis for Application of LID Best Management Practices- AMEC June 11, 2010, Northwest Brampton Subwatershed Study, City of Brampton

---

CVC staff has completed a detailed review of the above mentioned documents and provide the following comments for your consideration. We acknowledge the large amount of work that has gone into the modelling initiatives. Our comments focus on areas where we believe further elaboration and clarification is needed to increase overall confidence in the findings of that work and where additional LID considerations could assist with appropriately moving forward in completing the subwatershed study . Comments are separated under 3 headings:

1. **HSPF modelling** – per July 12 memo
2. **Application of LID best management practices** – per June 11 memo
3. **Differences in regional flows** – as calculated with the calibrated HSPF model and in the previous modelling applications.

The July 12, 2010 memo provided the City's response to CVC concerns on the HSPF parameterization and on the generic LID modeling configuration. These concerns were raised at the June 21, 2010 meeting and subsequently detailed in a June 22, 2010 memo from Bob Walker. The results of the calibration analysis on the HSPF water quantity model conducted during Phase 1 study report were provided for review. Our concerns / questions relate to:

a) Differences in the parameters applied in the quantity and quality models
b) Unrealistic (out of range) input parameter values to HSPF model
c) Calibration analysis on HSPF water quantity model
d) Model configuration of the generic LID component

The June 11, 2010 memo provided an overview of findings associated with LID applications in the POD and 2G land use scenarios along with a suggested approach relating to private and public side application of LID practices for the third round of modeling assessment.

1.0 HSPF MODELLING COMMENTS

a) Differences in the parameters applied in the quantity and quality models

Your memo states that model parameters differ because the water quantity model reflects observed conditions (elevations, drainage densities, soils, slopes) whereas the water quality model reflects generic characteristics (soils, slopes and land use). Parameters for the quantity model were determined in calibration, relying mostly on the Huttonville Creek observed data. You state that the water quality model is based upon the version provided by CVC as no on site calibration of this model has been done. In fact, the quality model as used in this study differs significantly from the "parent model" in terms of AGWRC, INTFW and IRC – all important flow proportioning and runoff rate parameters. No explanation is provided for why these values differ from the parent model or how the alternative values were determined. The quality model provided to AMEC had been calibrated to a degree in the Toronto Wet Weather Flow Management Master Plan study (2003). That calibration was reasonable but could be improved upon and made more site specific with each new study and additional observational data, as is the case here.

AMEC states that the CVC water quality model as provided was intended as a tool for estimating change and was not regarded as a reliable indicator of absolute values as reported in the CVC Water Quality Strategy Phase 2 report. This is used as a rationale for not adjusting the quality model. In fact, the full context of that qualifier states that accuracy is related to the time frame over which output is summarized and compared. The CVC quality model was reported as less reliable at short time steps (i.e., hours and days) as this was not its specific focus; however, it was stated that the model was regarded as very accurate at time frames of months, seasons and annual periods, especially in terms of water balance estimation, as is the intended use in this study. CVC believes that the current analyses should utilize information determined through calibration of the quantity model to better inform the quality model especially for snow, interflow and groundwater parameters. In this way the two models would be appropriately similar, in those parameters that should be similar.

Two parameters in particular have been flagged as widely disparate in their application between the models, namely MWATER and AGWRC. MWATER represents the maximum liquid water content of the snowpack with units of mm/mm (all in water equivalents). A value of 0.99 is used in the quantity model. This implies that the snowpack can achieve a state in which 99% of its contents are liquid water and only 1% as ice and snow. The value used in the quality model is a reasonable 0.25, near the upper end of the range most commonly applied and very near values typically used in CVC studies. The consequence of this high value for MWATER in the quantity model is that the snowpack will retain melted water and retard runoff during many small and medium snowmelt events and then release this water in large events when the pack is nearly all water.

The AGWRC parameter controls the rate at which groundwater, stored beneath the land segment can discharge to local streams. It represents the ratio of today's groundwater discharge to yesterday's discharge. In effect this parameter forces outflow to decay exponentially following a storm until the next storm or snowmelt event. A reasonable value of 0.99 is used in the quantity model, reflecting a slow and gradual discharge rate. A value of 0.5 is used in the quality model. This value is well below the commonly applied range of 0.85 to 0.99. At this value the groundwater will effectively discharge in a few days. AMEC tested the implication of AGWRC

values at 0.5 versus 0.99 in terms of groundwater discharge and found only a small difference in annual total terms.

AMEC argues that suggested adjustments in model parameters are unwarranted. As modeling is part art and part science, one must continually ask the question "Is this a reasonable representation of the real world?" It is important that the values selected reflect reality. Clearly with respect to MWATER in the quantity model and AGWRC in the quality model final values cannot pass this test. The consequences of resetting these values may not significantly impact on annual water balances but correcting them now would be good modeling practice.

b) Unrealistic input values in the HSPF model

Five parameters have been identified as lying outside the commonly applied range in the quantity and/or quality models. In addition to MWATER and AGWRC, already discussed the list also includes the parameters COVIND (snow cover index), IRC (interflow outflow rate recession parameter) and INTFW (interflow proportioning parameter) in the quantity model and IRC and INTFW in the quality model. Once again, it is claimed that the values in the water quality model were provided by CVC and this is simply not true. It is also claimed that the snowmelt parameters in the quantity model were determined in calibration. Without extensive field data on snow and snowmelt this is questionable.

The COVIND value used suggests that up to 1494 mm of snow (expressed in water equivalents, this is equal to about 15 meters of fresh snow) must lie on the ground on average before any of the ground will be bare of snow. This implies an unrealistic distribution of snow. Values under 500 mm are more realistic.

With respect to the interflow rate parameters INTFW and IRC the abnormal values are justified by stating that values lie within the executable range of the model. This does not qualify values as reasonable, as the model code does not screen and set values according to their appropriateness. This is the modeler's responsibility. The Halton Till is highly fractured and could result in high interflow rates so we are not recommending that interflow parameters be changed. The water quality model treats interflow and surface runoff equally and so re-proportioning runoff should not significantly affect annual water quality loadings.

Since the snowmelt parameters COVIND is unrealistic and since changing it at this time has no effect upon the quantity model calibration (it was calibrated with warm weather events) it should be set at a more realistic value.

c) <u>Calibration analysis of the HSPF water quantity model</u>

The Phase 1 Characterization Report and the July 12, 2010 memo state that the HSPF model was calibrated for most of the events monitored during 2006 and only one event for 2007. Following its review of the Phase 1 Characterization report, CVC provided AMEC with additional rainfall and flow data for gauge locations included in the Impact Monitoring Program. The calibration analysis should use all observed flow data up to the present. This issue was raised during review of Phase 1 Characterization report and was not addressed during the modelling run for POD and 2G landuse.

The simulated and observed hydrographs at gauge locations H1, H2 and H3 did not show a good match (time to peak, runoff volume, rising and receding limb of the hydrograph) for most of the calibrated rainfall events. AMEC states that certain parameters were extracted from the HSPF model which was applied for the Credit River Flow Management Study (Philips Engineering Ltd., September 2007). The Credit River flow management model was calibrated along the main branch of the Credit River and, therefore, provides only a coarse representation of the Huttonville

and Fletchers subwatersheds. The parameters shown to be outside the typical range should be adjusted during calibration analysis based on the local data. Observed and simulated peak flows plotted on the graphs represent very low values considering the contributing drainage areas and rainfall amounts.

The regression line showing results of model calibration are considered to be skewed, as the results are not plotted on 1:1 plot and the regression line was not forced through zero to show the true differences between observed and simulated flow values.

d) Model configuration for the generic LID component

It was determined at the July 13th meeting that LID effectiveness would be more realistically modeled using an effective surface area that will result in the discharge of the LID element within 72 hours following a storm. This will increase the discharge rate for LIDs in a selected land use by at least three times. In turn this will increase overall LID effectiveness, increase groundwater recharge and reduce water quality loadings substantially. This amendment was mutually agreeable to all present.

2.0 COMMENTS ON THE APPLICATION OF LID BMPs

The POD and 2G reports specify that the generic LIDs were modelled with "an infiltration component, a sub-drain component and an overflow component." (p.33 of the POD and p.49 of the 2G reports).

- How is this configuration represented in the schematic provided on p.4 of June 11th memo which appears to indicate only overflow and infiltration?
- Is there a sub-drain component and what values are being used to reflect the drainage of the LID?
- Will the proposed modelling use the HSPF URF files or a simple mass balance model?

CVC doubts the 2G findings regarding the modeled low effectiveness of LIDs in terms of reduced TSS loadings in Huttonville (only 8.5 tonnes/y or 2.4% over the conventional scenario in table 2) and increased recharge (only 15 mm/y in table 3). LID measures modelled to infiltrate and/or evaporate stored water over time, after a rainfall event, are likely to demonstrate greater effectiveness in improving recharge and water quality.

The June 11, 2010 memo identifies that LIDs were applied only to impervious areas and units of mm/impervious ha are stated on p.1. It is assumed that this means 5 mm of water stored from the impervious area runoff in the 2G case.

- How does this average out over various land uses when pervious and impervious areas are included? We suspect that actual overall application is < 3 mm in most land use types.
- The assumed 25% effectiveness reduction factor needs to be examined further as it implies a large majority of homeowners will retain and maintain their LIDs. This is likely to require strong intervention by the City to ensure long-term effectiveness is not compromised. Additional lot level LID practices such as infiltration trenches, bioswales and pervious paving stones can be configured to take lawn runoff as well as roof or road runoff. This would increase effectiveness and resiliency.

- The generic LID schematic outlined in the memo with infiltration and overflow component illustrate the application of LID practices such as infiltration trenches and soakaway pits for rooftop runoff. While these LID practices help to reduce runoff volume and enhance infiltration they provide only marginal water quality benefit.
- Practices that infiltrate and treat road runoff would provide much larger water quality benefits while helping to increase recharge and reduce erosion flows.

Table 3 in the memo illustrate that SWM with LID will increase average annual groundwater recharge for Huttonville Creek by an amount of 6.8 mm from existing conditions. It is an assumption in the modelling exercise that amount of water infiltrated into the soil will become a part of the groundwater. This may not be the case as an increase in the average annual groundwater recharge may be offset by an increase in evapotranspiration.

3.0 REGIONAL FLOWS

At the outlet of Huttonville Creek, the Regional peak flows are 50% higher than those calculated in previous modelling applications. In addition, at the outlet of Fletchers Creek, the Regional peak flows are 25% less than the Regional peak flow calculated in earlier modelling. The significant differences in the results of these modelling exercises requires explanation in order to demonstrate and document that there are no adverse implications should the HSPF flows be less representative of future conditions.

Once you've had a chance to digest the issues and suggestions raised in this memo I suggest we sit down in a small group to address each of them. CVC will be following up with further (less technical) correspondence summarizing its outstanding concerns relative to arriving at a successful conclusion to the subwatershed study.

Sincerely,

John

John Kinkead, P.Eng
Director – Water Resources

F7-74

August 4, 2010

Neal Grady
City of Brampton
2 Wellington Street West
Brampton, ON L6Y 4R2

Dear Mr. Grady:

Re: Application to Amend the Official Plan for Block Plan Sub-Area 51-1 in the Mount Pleasant Secondary Plan
City File no. BP51-1.001
City of Brampton

Thank you for providing the 'Notice of Application and Request for Comments (dated July 27, 2010)' for the above noted application clarifying the intent of your June 24, 2010 circulation.

Credit Valley Conservation (CVC) staff continues to work with the City and Landowners in an effort to complete the Subwatershed Study (SWS) for this plan area. Note there remain items to be further addressed through this process prior to CVC staff endorsing the study. As you are aware, these items are to be further discussed at an upcoming meeting between CVC and City staff.

As highlighted in your letter, CVC staff has not yet received the required Block Plan studies to provide recommendations for this application – in particular, an Environmental Implementation Report (EIR), Functional Servicing Study (FSR) and Comprehensive Fisheries Compensation Plan (CFCP). In this regard, CVC staff considers this application to be incomplete.

In addition, recognizing that a completed SWS and CFCP are needed to guide the EIR and FSR, it is CVC staff's expectation that this application will not be further processed until such time that the SWS and CFCP have been completed. In addition, CVC staff will not be in a position to provide final recommendations and/or support this application until such time the necessary block plan studies (i.e. EIR and FSR) have been completed to CVC staff's satisfaction.

I trust that these comments will be of assistance and request CVC staff be provided any further decisions made by the City on this matter. Please do not hesitate to contact the undersigned at (905) 670-1615 should you have any questions.

Yours truly,

Josh Campbell MES, MCIP, RPP
Senior Planner
Extension 289

cc: Andrea Warren, Region of Peel
Adrian Smith, City of Brampton

F7-75

Appendix 9

Correspondence from AMEC Earth & Environmental

F7-76

August 26, 2010
Our File: 106123-10

City of Brampton
2 Wellington Street West
Brampton, ON L6Y 4R2

ATTENTION: John Corbett
Commissioner, Planning, Design and Development

Dear Sir:

RE: North West Brampton, Fletcher's and Huttonville Creek, Subwatershed Study
Mount Pleasant Community, City of Brampton

Further to recent dialogue, AMEC Earth & Environmental, as Project Manager's for the Subwatershed Study, has reviewed issues raised by Credit Valley Conservation regarding matters of hydrologic modelling, Low Impact Development (LID) Best Management Practices (BMP's), major flood control, erosion, and water quality. The attached correspondence from June 11, and July 12, 2010 has been prepared, in part, to address these concerns. Based on the assessment work conducted to-date, as well as supplemental investigations yet to occur, we are confident that CVC concerns have been and will be, appropriately addressed to be outlined in the remaining phase of the Subwatershed Study.

We trust the foregoing, along with the attached, adequately addresses the City's current needs. Please contact the undersigned should you require any additional information.

Yours truly

AMEC EARTH & ENVIRONMENTAL
a division of AMEC Americas Limited

Per: R[illegible]ng., P. Eng.
Principal Consultant

RBS/ll

AMEC Earth & Environmental
A division of AMEC Americas Limited
3215 North Service Road
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Canada L7N 3G2
Tel (905) 335-2353
Fax (905) 335-1414

F7-77

Memo

To: **Michael Won, City of Brampton**
Christine Zimmer, Credit Valley Conservation
Dave Leighton, Urbantech Consulting

File no: 106123-26

From: Ron Scheckenberger

Date: June 11, 2010

c.c.: Hamid Hatami and Susan Jorgenson, City of Brampton
Neelam Gupta, Credit Valley Conservation
Nancy Mather, Stonybrook Consulting

Subject: Refined Analysis for Application of Low Impact Development Best Management Practices, Mount Pleasant Community, City of Brampton

Further to recent meetings held April 28, May 13, and May 28, 2010, we herewith have prepared this memorandum, which outlines the approach proposed to model the hydrologic impacts and performance of the application of Low Impact Development Best Management Practices (LID BMP's) for the Mount Pleasant Community (MPC).

As you are aware, the Landowner Team is currently working towards the submission of Environmental Implementation Reports, in support of Block Plans for the Mount Pleasant Community. An important consideration of the detailed planning and design in this regard involves the establishment of the practical application of LID BMP's to the urbanizing landscape. To-date, the AMEC Subwatershed Team has conducted two separate and distinct analyses of the application of LID BMP's; one for the Point of Departure (POD) Plan and the other for the Second Generation (2G) Plan.

As you will recall, the Point the Departure Plan applied a distributed rate of LID BMP volume capture, based on land use and associated "loss rates"; the application in this regard resulted in approximately 1.5 to 2 mm of volumetric capture overall. The Second Generation Plan, based upon dialogue amongst Study Team members (specifically John Parish, Cam Portt and Bill Blackport) involved a blanket application of 5 mm/imp. ha. In both cases, the performance was assessed based upon the improvements to the conventional stormwater management end-of-pipe systems. It is noteworthy that in each case, the modelling indicated that conventional stormwater management systems continue to be required to address flooding, erosion, and water quality targets. LID BMP's do not replace the end-of-pipe stormwater management, they complement it and in essence reduce overall end-of-pipe volume requirements by varying percentages, depending upon the objective function being considered.

Tables 1 and 2 offer a brief overview of the previous POD and 2G results, with respect to the improvements of the differing applications of LID BMP's on the end-of-pipe facilities, for flooding and erosion, and water quality. Again, the targets of no impact to off-site flooding and erosion and meeting Provincial water quality levels, as per MNR/ MOE Guidelines have been implicitly met by both applications of LID BMPs in the POD and 2G Plans.

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Table 1: Stormwater Management Requirements for Conventional and Stormwater Management with Low Impact Development (m^3/imp.ha)					
Land Use	Drainage Outlet	Conventional		SWM with LID	
		Extended Detention	Total	Extended Detention	Total
POD	F1	10 (40 minimum for extended detention)	925	10 (40 minimum for extended detention)	490
	F2	150	590	100	490
	F3	350	850	225	850
	F4	150	1250	75	925
	Huttonville (H)	275	850	176	825
2G	F1	450	975	350	975
	F2	150	1100	100	1100
	F3	325	850	300	850
	F4	650	900	575	850
	Huttonville (H)	225	1500	150	1450

In addition, Table 2 demonstrates the water quality analyses which were completed in support of the 2G Plan Assessment, demonstrating the benefits to stormwater quality through the application of LID BMP's in combination with conventional end-of-pipe stormwater quality control techniques.

Table 2: Annual Loading Rates of Total Suspended Solids for Huttonville Creek Subwatershed (kg)	
Scenario	Annual TSS Loadings
Existing	351, 470
Future Uncontrolled	434, 608
Conventional Stormwater Management	357, 110
Conventional Stormwater Management with LID	348, 657

Based upon the previous assessments, it is clear that the application rate of LID BMP's is not directly linked to the end performance associated with meeting flooding, erosion, and water quality targets, as the targets are being met in each scenario. Rather, the more formative and directly linked relationship is associated with overall system groundwater recharge. The following table compares the results of the POD and 2G assessment related to groundwater recharge.

Table 3: Simulated Average Annual Groundwater Recharge for Huttonville Creek Subwatershed as per POD and 2G Plan Assessments (mm)		
Management Scenario	POD	2G
Existing	89	91.3
No SWM	65	83.4
Conventional SWM	65	83.4
SWM with LID	76	98.1

Based on the foregoing results, a modified approach is being considered for this "third" assessment of LID BMP's. As you are aware, Urbantech Consulting has conducted a highly resolute and detailed assessment of land cover on the private land side for residential development (NOTE: LID BPMs are considered attainable on Parks and Schools, however, based on current policy the application in Municipal ROWS is not considered attainable). This analysis has identified the amount of land covered by rooftops, driveways, and permeable surfaces, and also further analyzed the distribution of roadway right-of-ways throughout the Mount Pleasant Community. In essence, this evaluation has provided an opportunity to assess

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the potential impacts of urbanization on existing conditions, as well as the residual requirements to off-set the impacts of urbanization on the base individual residential lot (premised on varying coverage levels).

In addition to the foregoing, there has also been discussion on the potential for the application of LID BMP's to the public right-of-ways. As noted during dialogue of May 13, and May 28, 2010, in order to effectively implement LID BMP's on public lands (i.e. roadway right-of-ways), there will need to be changes to municipal by-laws and standards. Premised on the predicted build-out rate for the Mount Pleasant Community (three years for development), it is considered highly unlikely at this time that the application of LID BMP's within municipal road right-of-ways will be feasible. Notwithstanding, it is considered probable and likely that through the implementation of the EIR's, that there will be opportunities to implement post-treatment (i.e. downstream of stormwater management facilities potentially within strategic parts of the NHS), LID BMP's, which would further promote overall infiltration and thereby further offset potential impacts of development on the area's water balance. It is noteworthy that at this stage, these forms of public-side LID BMP's (post-treatment) are not proposed to be modelled. This conservative approach would then not take into account the potential bonus benefits offered by these systems where they can be implemented. This opportunity would notionally be further advanced and assessed as part of future EIRs.

Therefore, on the basis of this perspective related to private-side and public-side application of LID BMP's, the following is proposed for the third assessment:

i) The private side average land use coverage unit will be assessed under Existing and Proposed conditions. It is proposed to model an average residential lot and associated cover as per the Urbantech calculation for an average meteorological year to determine the difference in the annual infiltration (which is currently estimated at approximately 25 mm/year +/-) to determine the potential capture requirement for LID BMP's (Note: the generic LID BMP unit developed by AMEC will be used in this regard).
ii) Based upon an iterative application of various LID BMP capture rates, a proposed volume will be generated.
iii) Given that it is anticipated that there will be some loss of LID BMP efficiency over time due to the introduction of private side infrastructure, compaction, and other factors beyond the control of the Municipality, a loss factor will be applied. Currently it is proposed by the Landowners that a specialized homeowner package be developed which outlines the responsibility of the Landowner in preserving the functionality of private side BMP's, which contribute to LID performance. At present, it is proposed that the loss rate be identified as 25% which accounts for societal response to the Homeowner package which reflects the Homeowner responsibility. Hence, there will be a need to increase the amount of LID BMP volume by this 25% in the application of these measures at the EIR stage.

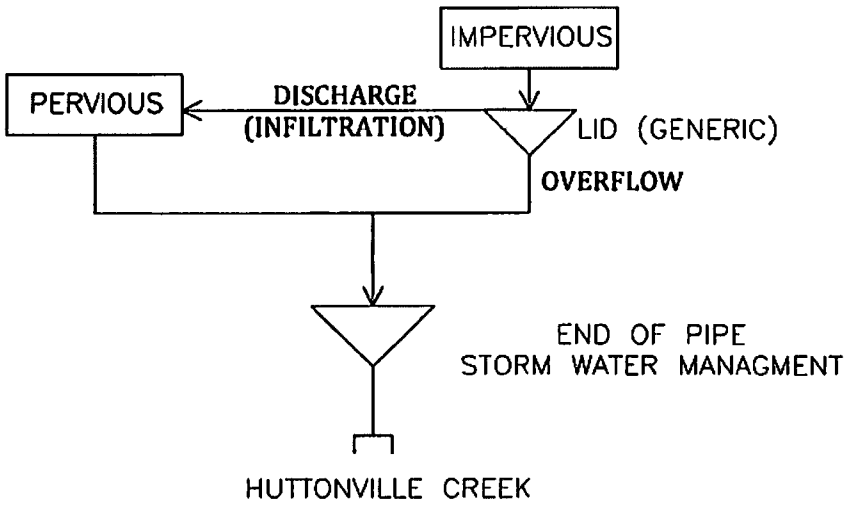
The following schematic outlines the approach being considered (ref. attached).

We look forward to discussing this approach, as well as those matters related to HSP-F model parameterization cited at the May 28, 2010 meeting, as well as recent draft correspondence. Should you have any questions in the interim period, please contact our office. We look forward to setting up a meeting at your earliest convenience.

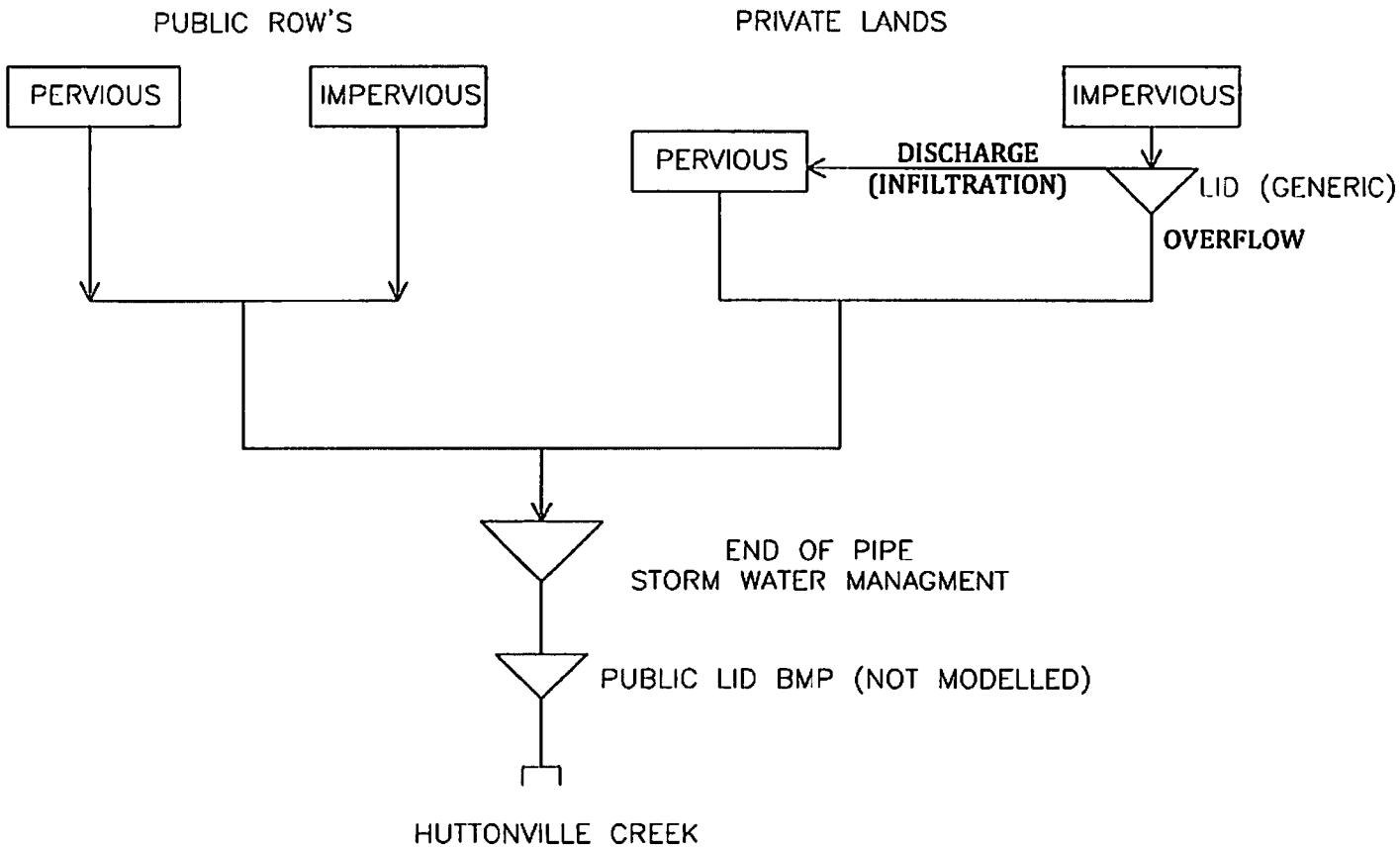
RBS/ll
/attach

F7-80

POD / 2G LID IMPACT ASSESSMENT



CURRENT PROPOSED ASSESSMENT



F7-81

Date: July 12, 2010
Our File: 106123-12

Credit Valley Conservation
1255 Old Derry Road
Mississauga, ON L5N 6R4

ATTENTION: Christine Zimmer, Senior Water Resources Engineer

Dear Christine,

RE: Response to CVC Comments Regarding HSP-F Models for North West Brampton Subwatershed Study

Based upon the discussions during the recent meetings of May 13, 2010, June 21, 2010, and June 28, 2010 with the Technical Steering Committee for the Northwest Brampton Subwatershed Study, as well as the Draft comments provided by CVC for the Phase 2: Subwatershed Impact Assessment Testing of the 2G Pont of Departure Plan for the Mount Pleasant Community (ref. Murphy-Scheckenberger/Jorgenson, May 26, 2010) and the correspondence subsequently provided by EBNFLO Environmental Inc. (ref. Walker-Scheckenberger/Zimmer, June 24, 2010), we understand that CVC staff and its consultant (EBNFLO Environmental Inc.) have recently completed a detailed review of the HSP-F hydrologic models which were provided for review with the Phase 1: Subwatershed Characterization and Integration Northwest Brampton Urban Development (Draft) (Philips Engineering Ltd., December 2007), and that, consequently, CVC has highlighted potential issues with respect to the HSP-F models used in the assessment to-date. Based upon the information provided during the meetings and the Draft comments cited above, we understand that CVC's concerns are, generally, as follows:

1. Certain parameters within the HSP-F quantity model differ from the parameters within the HSP-F water quality model,

2. Certain parameters within the HSP-F hydrologic model are outside of the typical range recommended by the model developers, and

3. The parameterization of the infiltration component within the routing elements representing the LID infiltration BMP's is considered lower than that which has been developed based upon the modelling experience of EBNFLO Environmental Inc., and that this may consequently be underestimating the effectiveness of these systems with respect to providing stormwater quality control, increased groundwater recharge, temperature mitigation, and peak flow attenuation.

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Given the recent focus surrounding these concerns, and in an effort to facilitate the commencement of the final round of modelling, we have prepared the following response, based upon the specifics and details provided by CVC and EBNFLO Environmental Inc.

1. Differences Between Quantity and Water Quality/Water Balance Models

As all parties to the Subwatershed Study process are aware, different HSP-F models are being applied for the quantity and water quality/water balance analyses. The quantity model has been developed based upon the HSP-F model which was applied for the Credit River Flow Management Study (Philips Engineering Ltd., September 2007), whereas the water quality/water balance model has been developed based upon the HSP-F model which was applied for the Water Quality Strategy – Phase II Watershed Model Development and Application to Future Management Scenarios (EBNFLO Environmental and Credit Valley Conservation, March 2009). The differences between the parent models, and hence the models developed for this study, have been previously discussed with the Steering Committee; in brief specific differences are as follows:

- Quantity model applies a conventional application of the HSP-F methodology, whereby runoff responses are generated for pervious and impervious land segments at the catchment-scale, which represents total contributing drainage areas to key points of interest (i.e. receiving watercourses, stormwater management facilities, hydraulic structures, etc.) for model elements (subcatchments) which are parameterized to represent specific components of the study area.

- The Water Quality model applies the unit response function (URF) methodology for areas representing generic land segments which represent a specific combination of a land use, soil type, and slope for a "typical" 1 ha development of the generic land segment; the models to generate the unit response function for the urban land uses are highly discretized, with model elements (i.e. catchments) representing specific components of the developed urban form (i.e. lawns, boulevards, rooftops, roads, driveways, parking lots, patios, etc.).

- The parameterization for the subcatchments within the Quantity model is intended to be representative of the physical conditions of the area modelled (i.e. elevation, drainage density, soils, slope). The parameterization for the Water Quality Model is intended to reflect the "generic" nature of the modelling elements (i.e. the "generic land segments"), hence the parameterization is intended to be more "generic" in nature (i.e. specific to soil types, slope, and land use but not specific to geographic locations, drainage density, etc.); it should be noted, however, that due to the timescale of interest for the assessment (i.e. average annual volumes), the "generic" modelling approach applied in the Water Quality model is considered acceptable.

- The Quantity model has been executed for a 40 year continuous simulation period. In accordance with the methodology previously applied for the CVC Water Quality Study, the Water Quality model has been executed for a six year continuous simulation period.

- The Quantity model generates a simulated flow record at 15 minute timesteps. In accordance with the methodology previously applied for the CVC Water Quality Study, the flow record generated by the Water Quality model for each "generic land segment" is ultimately used in order to generate average annual surface and interflow runoff response, groundwater recharge, and evapotranspiration.

F1-83

As indicated by the foregoing, the modelling elements for the quantity model are coarser than those for the water quality model (i.e. subcatchment scale versus 1 ha "lot"); however, the quantity model applies a longer simulation time period than the water quality model (i.e. 40 years versus six) and the quantity model is also required to produce results at a much more discrete time period than the water quality model (i.e. results required at 15 minute time steps versus average annual results). Moreover, while the quantity model is required to provide specific, quantifiable results and guidance with respect to stormwater management (flood and erosion) requirements for proposed future development, the water quality model, as described in the Credit River Water Quality Strategy Phase II Report, should be regarded as a tool for estimating the effects of change or as an indicator of sensitivity to change only (i.e. the absolute values of the simulated results should not be relied upon). The foregoing differences with respect to the representation of the study area and the differences in the detail required in the model results would, inherently, be anticipated to produce differences in the calibrated parameters. Nevertheless, while specific differences may occur, the values for the parameters associated with soil storage and infiltration capacity should be comparable between the two models.

The values provided in the UCI files which were furnished for CVC review with the December 2007 Characterization report represent the calibrated results for each model. As indicated in the Characterization report, in order to maintain consistency between the water quality and the quantity models, the initial parameterization for the catchments within the quantity model were obtained by areally weighting each parameter for the specific generic land segment within the water quality model by the portion of the respective land segment within the catchment of interest; due to the application of the areal weighting, and the subsequent parametric scaling during the calibration process, the parameters are noted to generally vary by subcatchment within the quantity model, and hence produce a range of values among the model elements within the quantity model. By comparison, the parameters within the water quality model demonstrates some consistency based upon a given land use and/or soil type and/or slope range; as such, the range of values within the water quality model tend to be associated with specific land uses and/or soils and/or slopes.

In order to more quantitatively address the recent concerns raised by CVC and EBNFLO Environmental Inc., the quantity model and water quality models have been reviewed and the values of the parameters of key concern, as cited by CVC and EBNFLO Environmental Inc., have been compared in order to verify that the values within the models are comparable and appropriate. The results are presented for the Huttonville Creek Subwatershed, which served as the primary basis for model calibration. [NOTE: As indicated in the December 2007 Characterization Report, the calibration process utilized the observed streamflow data for the Huttonville Creek Subwatershed, since the observed streamflow which was provided for the Fletcher's Creek Subwatershed was deemed unsuitable for the purpose of calibrating the hydrologic model. The calibration for the Huttonville Creek Subwatershed established the weighting factors for each model parameter, which, when applied to the respective model parameters, yielded the best fit to the observed data at the three streamflow gauge locations; these factors were then applied to the respective parameters for the Fletcher's Creek Subwatershed model, which is similar to the Huttonville Creek Subwatershed in terms of overall physiography and composition within the study area, in order to obtain a model which was considered representative of the physiographic conditions within the Fletcher's Creek Subwatershed.]

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Model Parameter and Units	Values within Quantity Model	Values within Water Quality Model
Soil Parameters		
LZSN (mm)	Range from 72.0 – 108.84; Typical value 75.0	50.0 for Roads and Urban Lands 187.5 for Wetlands 75.0 for all other Non-Urban Lands
INFILT (mm/hr)	Range from 0.45 to 4.49; Typical value 0.45	Range from 0.375 to 4.0 for roads and urban (varies according to soil type); Range from 0.15 to 9.0 for non-urban lands (varies according to soil type and slope) Typical values for clay/type C soils are 0.375 for urban land uses and 0.45 for low-gradient agricultural (prominent non-urban land use within study area)
AGWRC (1/day)	0.99	0.50
UZSN (mm)	Range from 10.58 to 20.54; Typical value 16.0	12.0 for roads and urban lands; 14.4 for non-urban lands
INTFW (unitless)	Range from 10.0 to 16.0; Typical value 16.0	8.0 for Roads and urban lands 8.0 for rural open spaces, wetlands and forests 16.0 for agricultural
IRC (1/day)	Range from 0.040 to 0.043 Typical value 0.043	0.065 for roads and urban 0.040 for non-urban
Snow Accumulation and Melt Parameters		
COVIND (mm)	Range from 591.8 to 856.8 Typical values of 810 (+/-)	400 for urban 540 or 900 for non-urban (depending upon land use)
MWATER (unitless)	0.99	0.15 for urban 0.05 for non-urban

The information presented above demonstrates that the values of the parameters cited by CVC are comparable between the two models (i.e. similar range and typical values), with the exception of the groundwater recession constant (AGWRC) and the maximum water content of the snowpack (MWATER). The values of MWATER within each model have been retained as per the respective parent models, while the value of MWATER within the Flow Management Study was calibrated based upon observed snowmelt conditions, the basis for the values within the parent water quality model, as well as the variation between urban and rural land uses, is unknown; notwithstanding, as indicated in the Draft comments provided by CVC, the variations in the value of MWATER between the two models is considered to be of minor significance, and would not affect the results of the calibration or analyses of either model.

EBNFLO Environmental Inc. has cited the differences in the groundwater recession constants as a potentially significant concern with respect to the applicability of the models. In order to address this matter, the difference between the two models is demonstrated by the difference in the simulated average annual groundwater recharge within quantity and water quality models for the existing land use condition, as provided in Table 1. These results demonstrate a nominal difference and a general lack of sensitivity.

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Table 1: Simulated Average Annual Groundwater Recharge from Quantity Model and Water Quality Model for Existing Land Use Conditions (mm/year)	
Quantity Model (ref. PEL, June 2009)	Water Quality Model (ref. AMEC, March 2010)
89	91.3

As discussed during the recent meetings with CVC, the basis for retaining the different values within the two models relates principally to incorporating values which reflect the spatial and temporal resolution of each tool. To elaborate, at the subcatchment scale, the contributions toward maintaining sustained baseflow at downstream locations should, necessarily, be reflected in the parameterization of the model. By contrast, at the lot-level scale, the sustained baseflow conditions are more a result of the routing of the combined effects of groundwater recharge from the individual lots through the hydrogeologic stratum; on this basis, it would be considered more appropriate to parameterize the groundwater recession constant at the lot level such that it reflects the recharge afforded at the catchment scale as a result of the storm event (i.e. to apply a shorter recession constant for the lot level scale), and to incorporate the sustained baseflow condition through the parameterization of a routing element which represents the hydrogeologic stratum.

Notwithstanding the application of analytical techniques representative of physical processes outlined above, the foregoing, in our opinion, demonstrates that the difference in groundwater recharge between the two models represents a marginal difference in the overall groundwater recharge to the system. Furthermore, given that the water quality model is considered suitable for the purpose of assessment of change rather than absolute quantities, and also given the temporal scale of the model (i.e. determination of annual volumes for the purpose of mass balance modelling, as opposed to application of a more resolute temporal discretization), it is respectfully suggested that further refinements to the groundwater recharge component of the water quality model are unwarranted.

2. Parameterization of HSP-F Hydrologic Model

CVC staff has identified that the following parameters are outside of the "normal ranges" recommended by the model developers:

- COVIND (cover index for the snowpack, which represents the depth of snow at which the pervious land segment would be completely covered with snow, mm)
- MWATER (maximum water content of the snowpack, percent)
- IRC (interflow recession constant, 1/day)
- INTFW (interflow inflow parameter, unitless)
- AGWRC (groundwater recession constant, 1/day)

As previously stated in this correspondence, and as indicated in the December 2007 Phase 1 Characterization Report, the HSP-F hydrologic model which was developed for the Flow Management Study (Philips Engineering Ltd., September 2007) represents the parent model for the HSP-F quantity model for the Northwest Brampton Community, and the HSP-F model which was developed for the recently completed modelling of the Credit Valley Conservation Water Quality Strategy – Phase II (EBNFLO Environmental Inc./Credit Valley Conservation, March 2009) has served as the parent model for the HSP-F water quality model. The differences between the two models and the rationale for the different models (i.e. the quantity model and the water quality model) are described earlier in this correspondence. The following provides a more detailed discussion of the individual parameters cited:

F7-86

Calibration of Snow Accumulation and Melt Parameters

The snowmelt parameterization within the parent models has served as the basis for the parameterization of the snowmelt parameters, which includes the COVIND and MWATER parameters, within the refined models. As CVC is aware, the calibration of the HSP-F hydrologic model for the Flow Management Study included calibration of snowmelt parameters to historic snowmelt events; the values for the COVIND and MWATER, which have been incorporated into the HSP-F quantity model for the Northwest Brampton Study, have been established in order to be consistent with the range of values applied in the calibrated Flow Management Study. Similarly, the values for COVIND and MWATER within the water quality model for this study have been retained as per the values within the parent water quality model for the Water Quality Strategy provided for this study; although no information is provided within the March 2009 Phase II Report for the Water Quality Strategy which indicates that the snow accumulation and melt parameters have been calibrated to any observed data or to substantiate the values applied in that parent model, we concur with CVC's comment that these parameters would have little effect on the results of the analyses completed using each model, hence no changes are considered warranted.

Calibration of Interflow Parameters

As previously discussed with CVC during the meeting of June 21, 2010, the parameters IRC and INTFW have been established through the calibration process. While it is recognized that the parameters are outside of the "typical" range recommended by the model developers, the calibrated value of 0.04 +/- for the interflow recession constant is validated by the calculated recession constant for the observed hydrographs from the monitoring program conducted for this study, as provided in the December 2007 Characterization Report, and presented in Table 2.

Table 2: Hydrograph Recession Constants for Formative Rainfall Events (1/days)

Event	Date	Rain (mm)	Inter-event Time (days)	H1	H2	H3
1	10-Jul/06	42.25	13	0.064	0.28	0.27
2	12-Jul/06	39.25	2	0.042	NA	0.285
3	28-Jul/06	22	16	NA, NA	0.4	0.235
4	19-Sep/06	14.3	5	NA, NA	NA, NA	0.073
5	4-Oct/06	17	7	NA, NA	0.01	0.054
6	11-Oct/06	21.2	7	0.046	0.08	0.044
7	17-Oct/06	31.6	6	0.048	0.079	0.033
8	27-Oct/06	19.3	10	0.036	0.079	0.033
9	16-Nov/06	33.2	9	0.053	0.031	0.029
10	1-Dec/06	51.7	14	0.036	0.094	NA
11	15-May/07	28.8	19	0.025	0.031	0.079

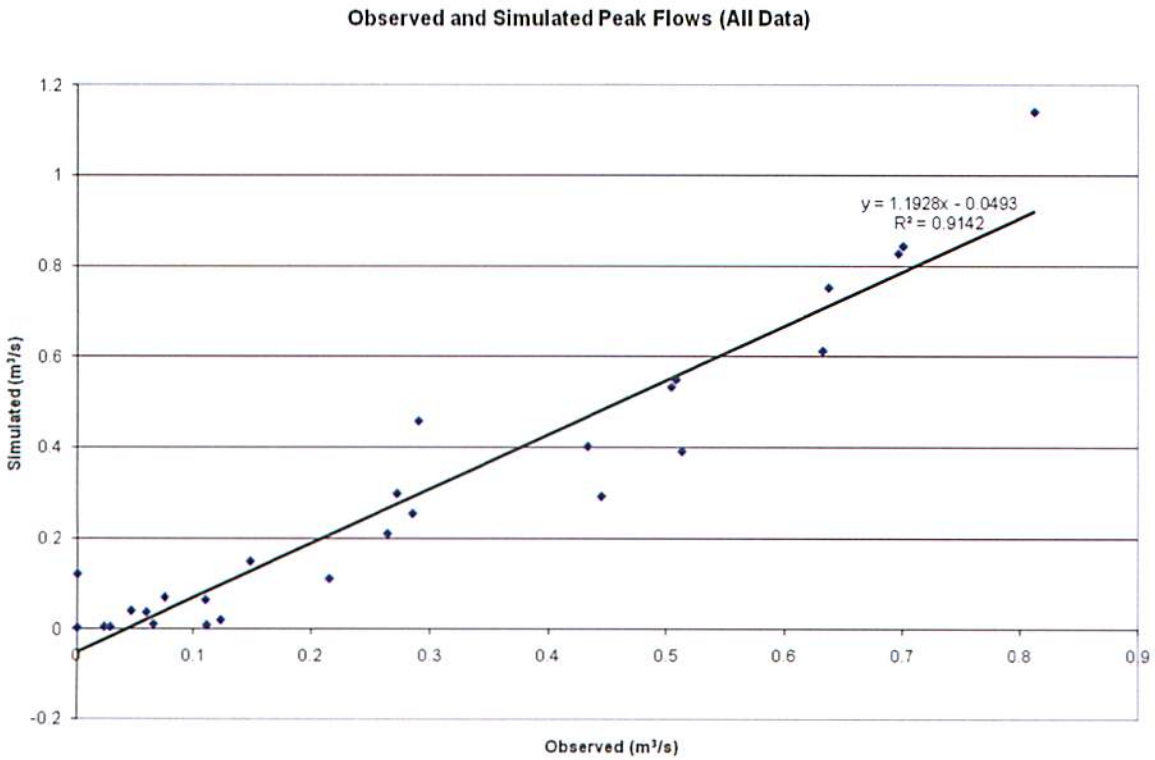
Once the IRC value was calibrated to reproduce the shape of the receding limb of the hydrograph, the INTFW parameter was adjusted in order to reproduce the shape of the hydrographs based upon the results of the streamflow monitoring program. While it is recognized that the calibrated parameters are outside of the "typical" range recommended by

the model developers, the values are substantiated by the calculated recession constants provided above and the observed hydrograph shapes, and are within the acceptable range for the execution of the HSP-F model. [NOTE: In the event that parameters are set outside of the acceptable range for the HSP-F model, the model fails to execute and returns an error message within the echo file.]

Results of Model Calibration

Ultimately, the acceptability of a model calibration is dependent upon how well the calibrated model reproduces observed conditions. Typically, the metrics applied for this type of assessment consist of a comparison of simulated and observed peak flows and runoff volumes for select storm events, as well as a comparison of the overall "shape" of the observed and simulated hydrographs. As CVC is aware, the validation of the models included a rigorous comparison of the simulated groundwater recharge rates for the water quality model and the calibrated groundwater recharge rates for the FEFLOW hydrogeologic model. Full details regarding the results of the model calibration are provided in the December 2007 Draft Characterization Report; graphical comparisons of the calibration results for the quantity model and water quality model, as provided in the December 2007 Characterization Report, are provided below, and comparisons of simulated and observed hydrographs for the quantity model are attached.

Calibration of Quantity Model



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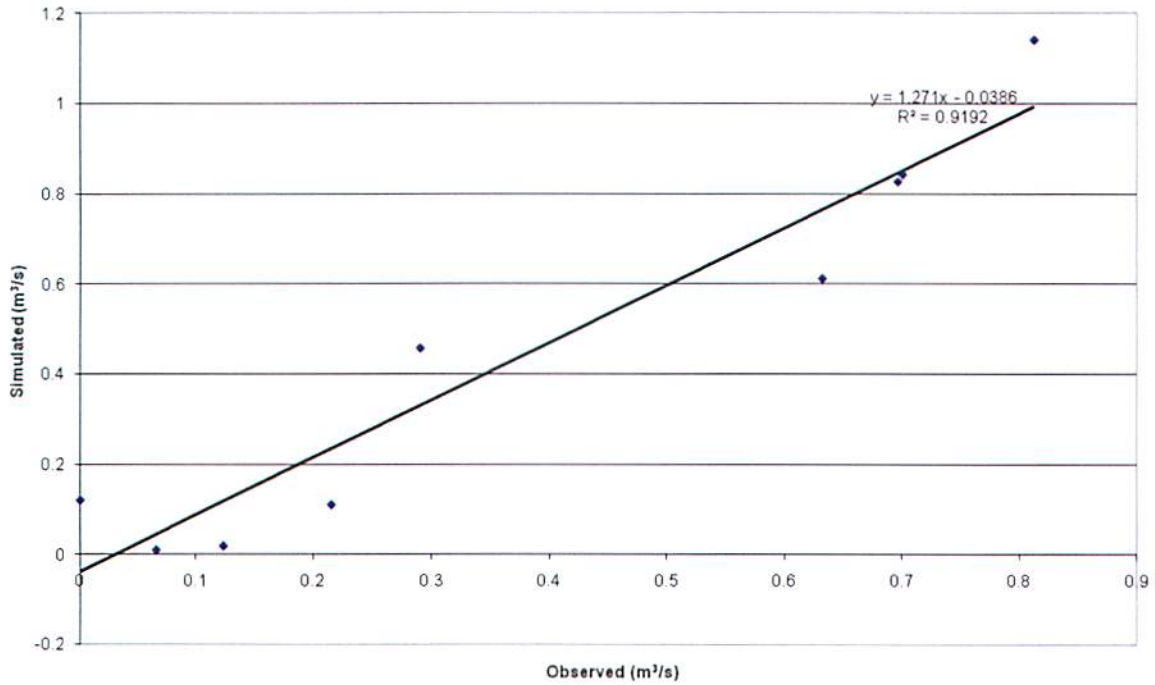
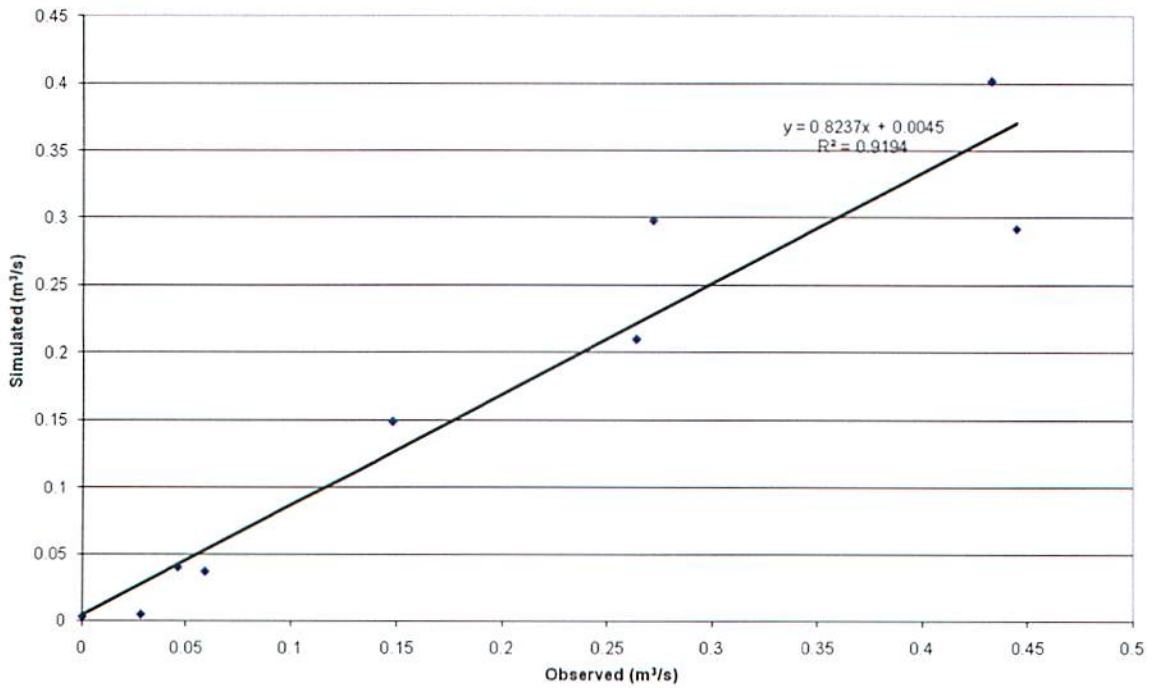

Peak Flow Comparison (Gauge H1)
y = 1.271x - 0.0386
R² = 0.9192
Simulated (m³/s)
Observed (m³/s)
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9


Peak Flow Comparison (Gauge H2)
y = 0.8237x + 0.0045
R² = 0.9194
Simulated (m³/s)
Observed (m³/s)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5

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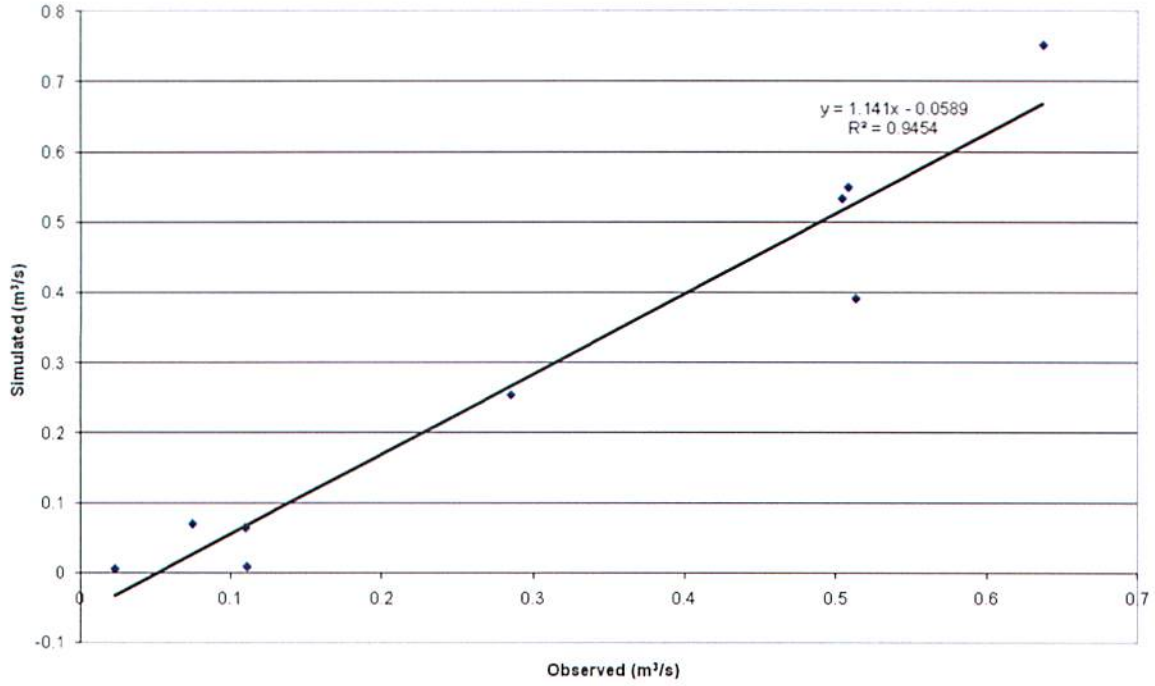
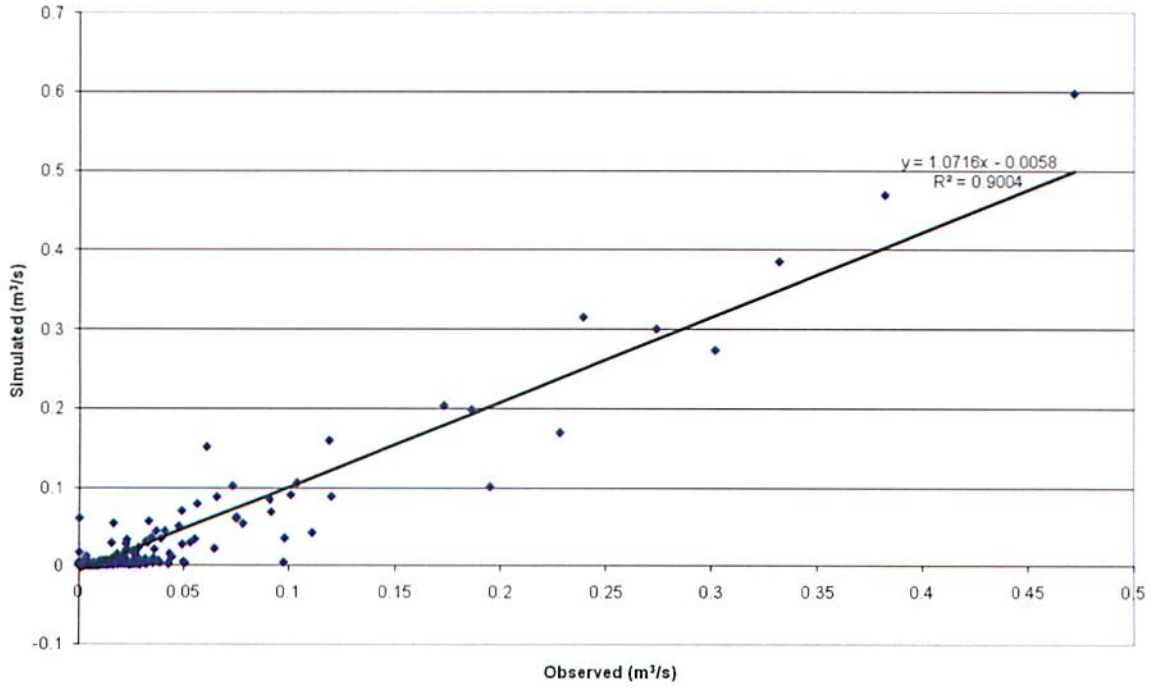
Peak Flow Comparison (Gauge H3)



Observed and Simualted Daily Average Flows (All Data)



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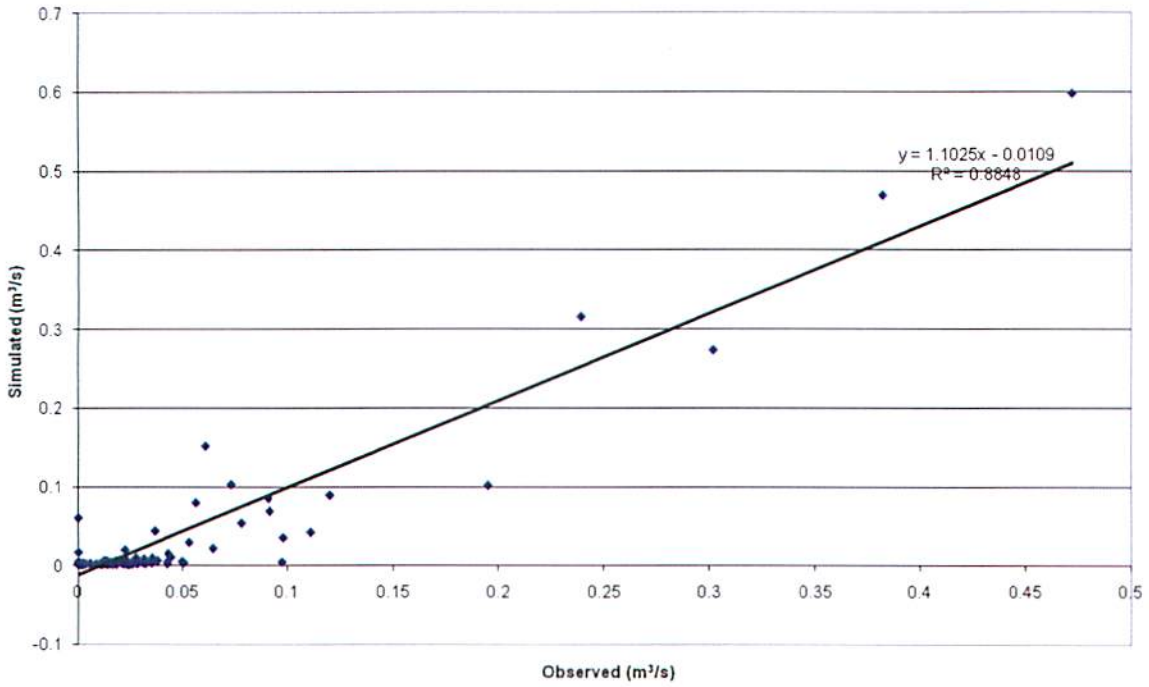
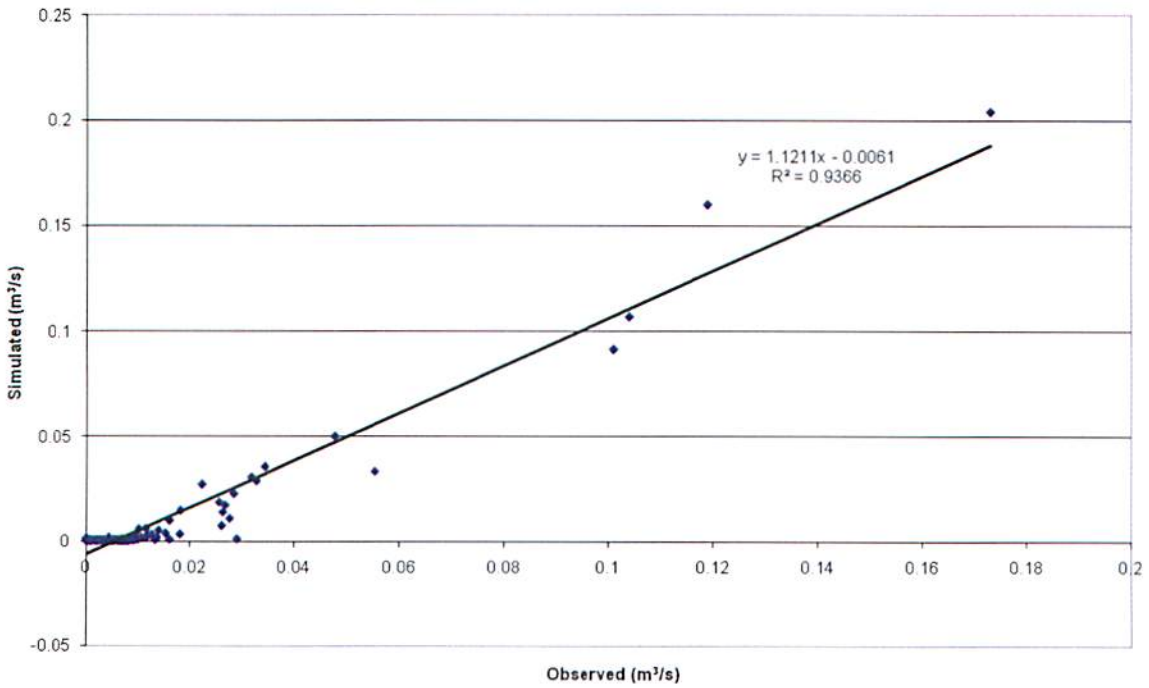
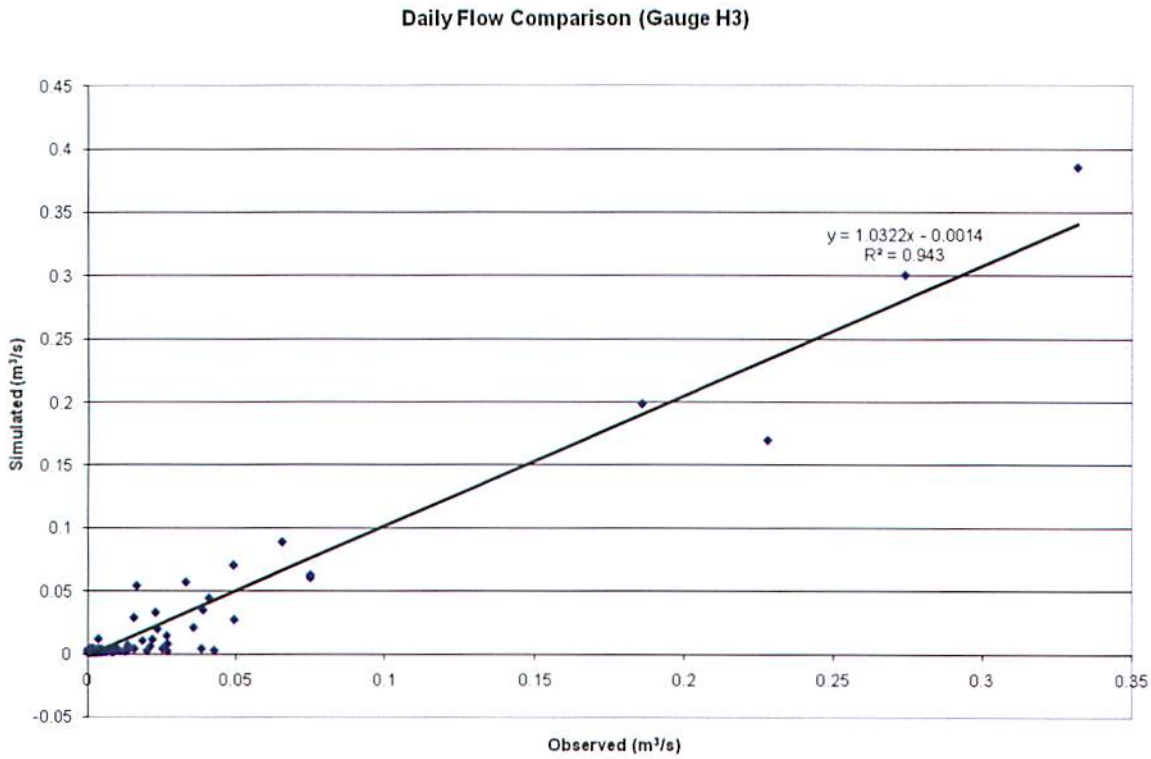
Daily Flow Comparison (Gauge H1)



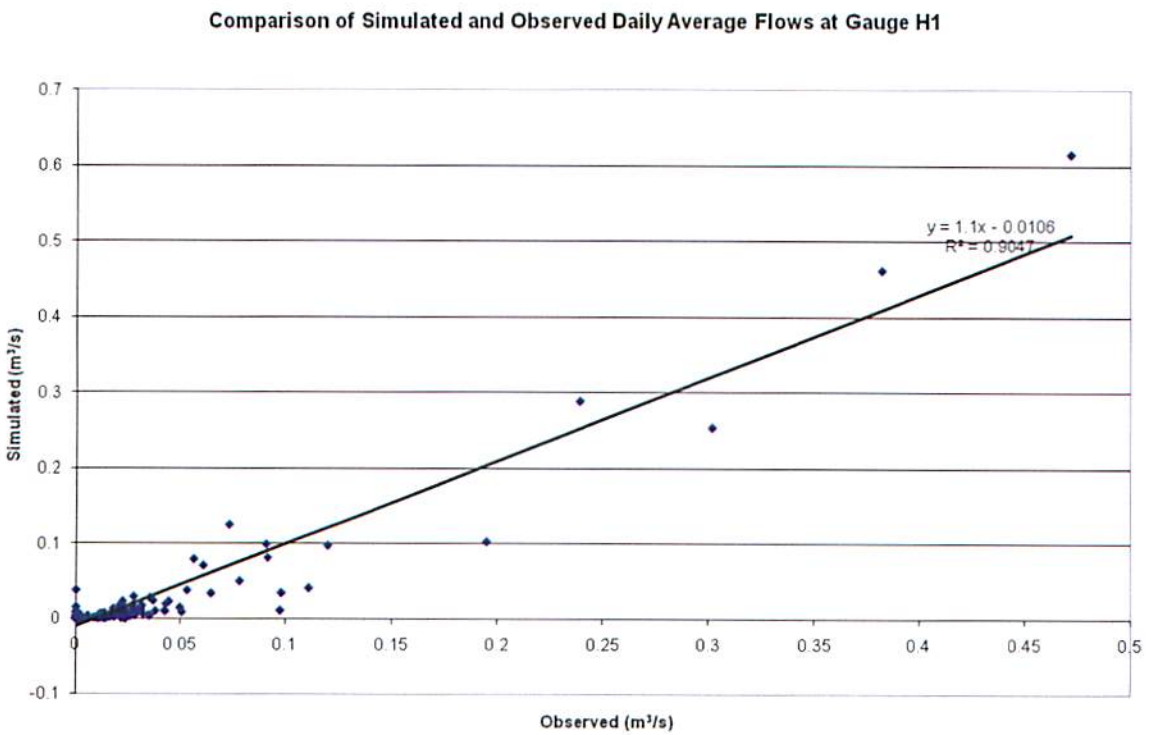
Daily Flow Comparison (Gauge H2)



F7-91

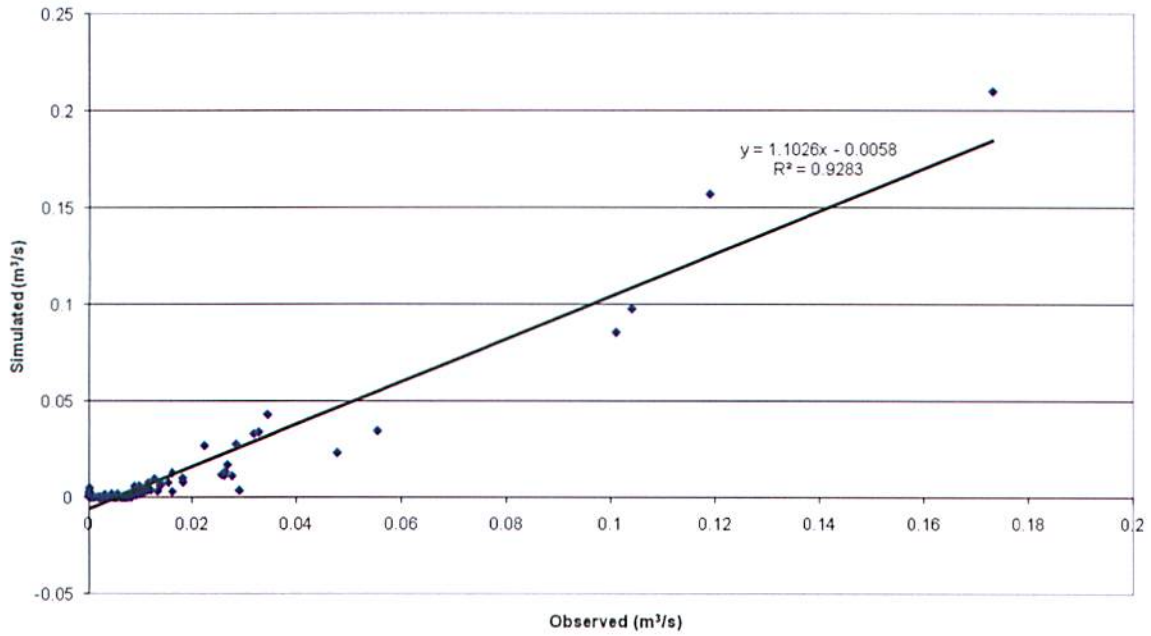


Water Quality Model Calibration

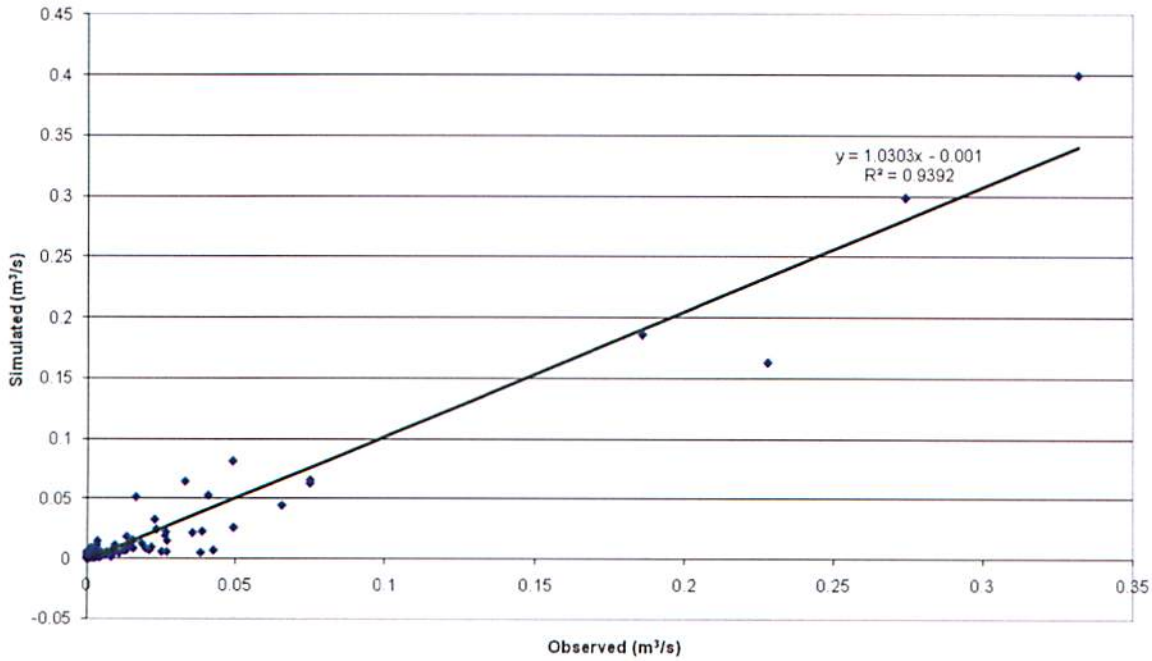


F7-92

Comparison of Simulated and Observed Daily Average Flows at Gauge H2



Comparison of Simulated and Observed Daily Average Flows at Gauge H3



F7-93

The foregoing information, as well as the attached hydrographs, demonstrate that the calibrated quantity model strongly correlates to the observed conditions during the monitoring period (i.e. correlation coefficients greater than 0.9). Moreover, the comparison of the simulated and observed hydrographs indicates that the calibrated quantity model provides results which are representative of various storm events and antecedent conditions (i.e. rapid runoff for wet antecedent moisture conditions and nominal runoff for dry antecedent moisture conditions). As previously indicated, the recession constant for the hydrographs was noted to be quite low based upon the observed events; the hydrographs demonstrate that this condition has been replicated by the calibrated quantity model. As indicated in the December 2007 Characterization Report, the parameter adjustments which were established for the calibration of the quantity model for the Huttonville Creek Subwatershed were applied to the parameters for the Fletcher's Creek Subwatershed in order to obtain a calibrated model for that area; this approach is considered reasonable and appropriate given the proximity of the two areas, as well as the similar soil conditions (i.e. fractured Halton Till) which prevail within both regions.

The above results for the water quantity model demonstrate that the model has reasonably reproduced the observed daily average flows, and hence the observed daily runoff volumes at the monitoring locations.

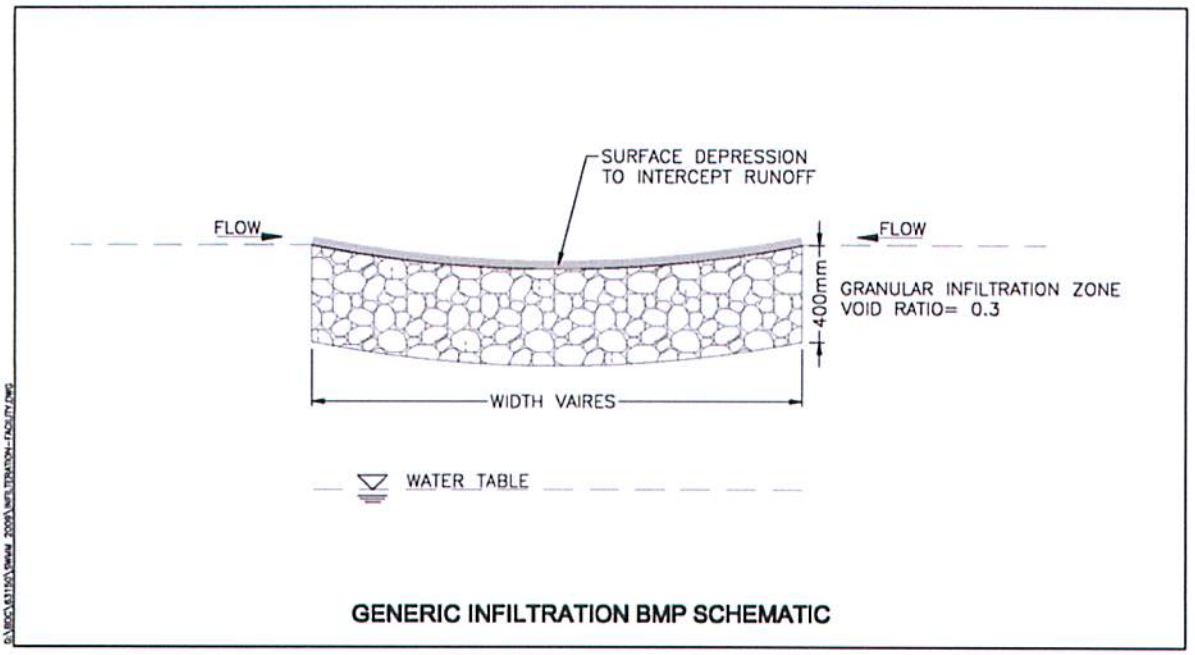
Finally, as noted in the December 2007 Characterization Report, and as previously reported to the Steering Committee, the simulated groundwater recharge volumes for both the quantity and water quality models are considered consistent with the calibrated recharge volumes for the FEFLOW hydrogeologic model; in fact, the simulated groundwater recharge volumes (i.e. 90 mm +/-) represent an improvement compared to the recharge volumes previously determined and applied by CVC for this study area (i.e. 160 mm +/-). On the basis of the foregoing, and given that the water quality model is, as CVC has stated, considered suitable for the purpose of sensitivity analysis as opposed to precise quantifications of impacts, the water quality model is considered sufficiently calibrated and developed for this study, and it is respectfully recommended that further refinement and calibration is unwarranted.

3. Calculation of Discharge Rate for LID Infiltration BMP's

EBNFLO Environmental Inc. has suggested that the discharge rate from the generic LID BMP's, which are currently incorporated into the model, have underestimated the infiltration rate afforded by these facilities. The discharge rate from the LID infiltration BMP's has been determined based upon the generic infiltration element which was presented to the respective members of the Steering Committee during the meeting of February 19, 2009 (ref. attached).

As discussed during that meeting, this conceptual element has been applied for the assessment of general LID effectiveness in meeting water quality and erosion control targets, and has been intended to be less specific with respect to the type of LID infiltration BMP simulated, and more representative of the function of the BMP. Nevertheless, in order to account for the relationship between the surface area, storage volume, and discharge rate of the LID infiltration BMP, the conceptual element has been established based upon an assumed depth and material for of the storage medium. Based upon a review of available design standards for various infiltration technologies, a depth of 0.4 m was assumed as the appropriate depth of the material matrix since this was noted to represent the minimum depth of the material matrix of all the infiltration technologies; a void ratio of 0.3 has been assumed, which is representative of the voids associated with the application of a granular medium. This concept is illustrated in the following figure.

F7-94



GENERIC INFILTRATION BMP SCHEMATIC

As the above schematic indicates, the conceptual infiltration unit consists of a granular matrix embedded within the native soil. Runoff from the contributing drainage areas would be stored within the voids of the granular matrix, and the available storage volume within the unit is calculated as:

$$V = n \times d \times A$$

where
V = storage volume within the infiltration facility (m^3)
n = void ratio of the granular matrix (unitless)
d = depth of the granular matrix (m)
A = surface area of the granular matrix (m^2)

The requisite storage volume within the unit has been determined based upon the prescribed capture rate, in mm, and the impervious area to be draining to the facility. Recognizing that volume is a prescribed target, based upon the requisite capture rate and the contributing impervious area to the facility, the above equation can be rearranged to calculate the surface area of the granular matrix based upon the remaining known variables as follows:

$$A = V/(n \times d)$$

The infiltration unit is assumed to be constructed above the water table in order to avoid groundwater interaction. Hence, the infiltrated discharge rate for the facility is calculated as

$$Q = i \times A$$

where
Q = infiltrated discharge rate from the infiltration facility (m^3/s)
i = infiltration capacity of the native soil surrounding the infiltration facility (m/s)
A = surface area of the granular matrix (m^2)

F7-95

As per the discussions during the February 19, 2009 meeting, an infiltration rate of 0.5 mm/hr has been applied for the LID infiltration BMP's, as this was deemed by the members of the Steering Committee (in attendance at that meetings), as well as the Subwatershed Team, to be consistent with the calibrated infiltration rates for the HSP-F hydrologic models of the study area and representative of the infiltration capacity of the native soil (i.e. the fractured Halton Till).

In order to validate the discharge rates calculated for the LID infiltration BMP's which have been incorporated into the HSP-F models, the following sample calculation for the discharge rate from the LID infiltration BMP for Medium Density Residential land use conditions has been provided, based upon the prescribed target advanced in the 2G Plan Impact Assessment.

Given:

Drainage Area = 1 ha at 50 % impervious coverage
Required Capture = 5 mm per impervious hectare (2G Plan assumption)
Infiltration Rate of surrounding soil = 0.5 mm/hr

Volume Required = [Impervious Area] x [Required Capture]
= [(1 ha x 0.5) x (10,000 m^2/ha)] x [(5 mm) x (1 m)/(1,000 mm)]
= 25 m^3

Surface Area of Matrix = V/(n x d)
= (25 m^3)/(0.3 x 0.4 m)
= 208.3 m^2

Infiltration Discharge Rate = [Surface Area of Matrix] x [Infiltration Rate of Surrounding Soil]
= [208.3 m^2] x [(0.5 mm/hr) x (1 m/1,000 mm) x (1 hr/3,600 s)]
= 0.000029 m^3/s

The routing element which represents the LID infiltration BMP for medium density residential land use conditions is FTABLE 216 in the files reshicon.uci and reslocon.uci which were provided to CVC for review. The above calculated infiltration discharge rate is identical to the value which is provided within that FTABLE for a corresponding storage volume of 25 m^3.

Hence, based on our review of the June 22, 2010 memorandum from EBNFLO Environmental, it would appear that the arithmetic differences in the calculations relate to the surface area over which the infiltration is occurring, which similarly differs by an order of magnitude (i.e. 5000 m^2 versus 208.3 m^2). Given the uncertainty in the specific LID BMP, it is respectfully suggested that the approach as previously discussed with the Steering Committee in 2009 remains appropriate and conservative. Clearly, alternative LID BMP's will have different performance metrics, however the specifics in this regard should be evaluated in more detail at the EIR stage.

We trust that the foregoing satisfactorily addresses the recent concerns raised by CVC and EBNFLO Environmental Inc. and that the hydrologic modeling for the final Scenario may proceed.

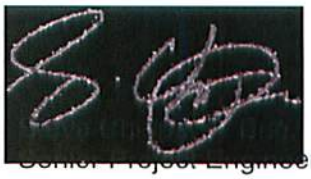
P7-96

Credit Valley Conservation
July 12, 2010

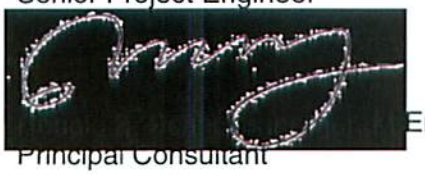
Yours very truly,

AMEC Earth & Environmental
A Division of AMEC Americas Limited

P[illegible], P.Eng.
Senior Project Engineer

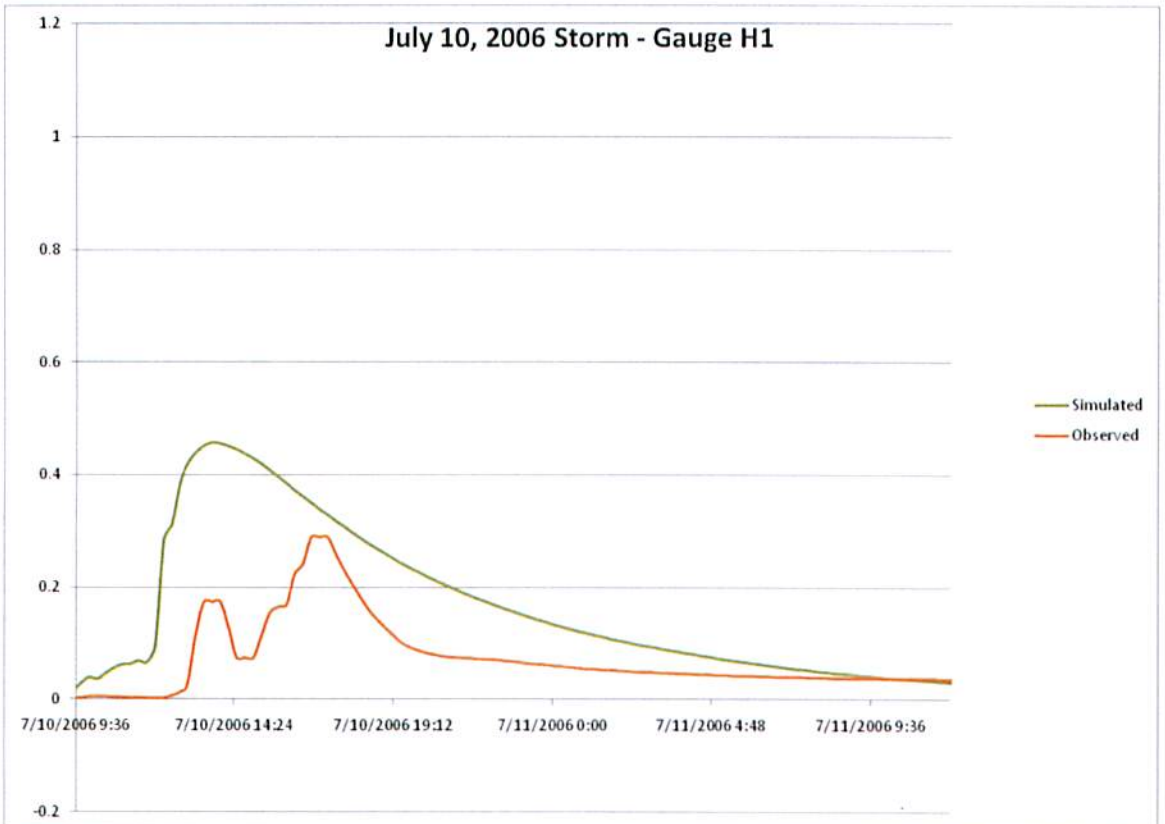


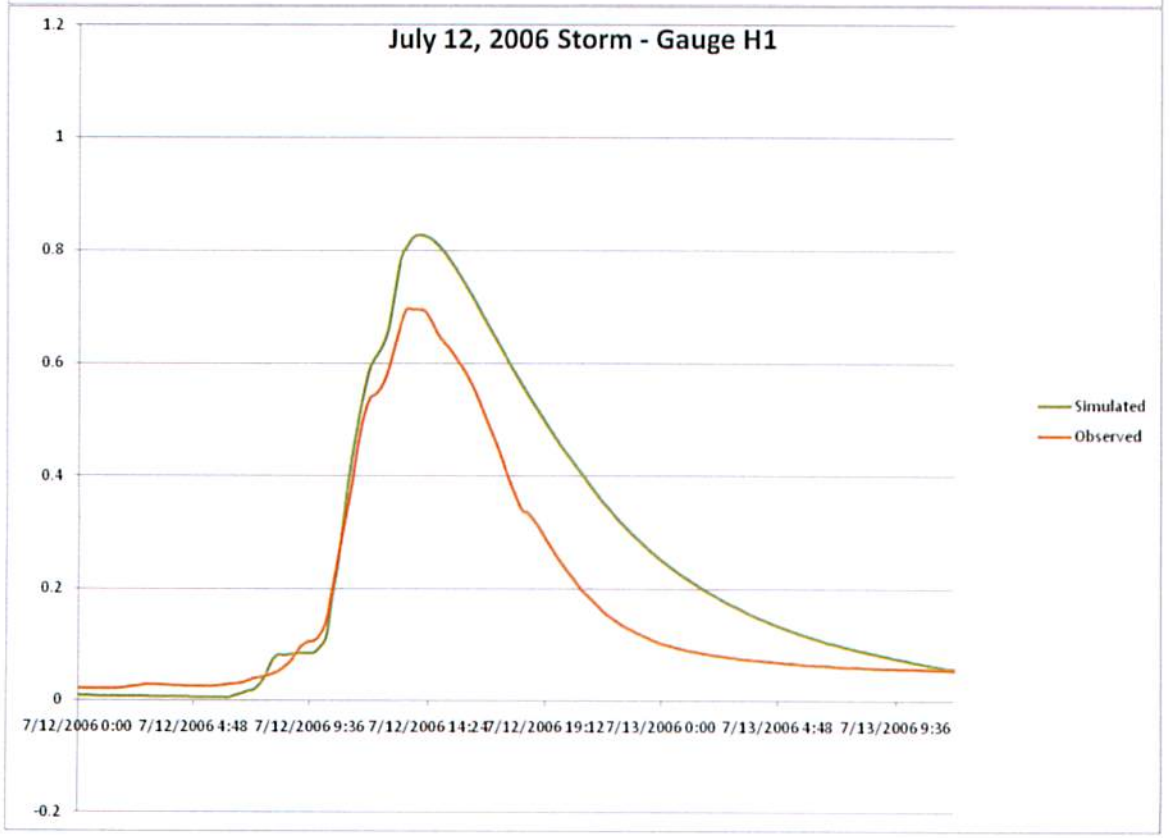
Per: [illegible]
Senior Project Engineer



Per: [illegible] Eng., P.Eng.
Principal Consultant

c.c. Susan Jorgenson, City of Brampton
Michael Won, City of Brampton
Nancy Mather, Stonybrook Consulting
Dave Leighton, Urbantech Consulting
Bob Walker, EBNFLO Environmental


July 10, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
7/10/2006 9:36
7/10/2006 14:24
7/10/2006 19:12
7/11/2006 0:00
7/11/2006 4:48
7/11/2006 9:36
Simulated
Observed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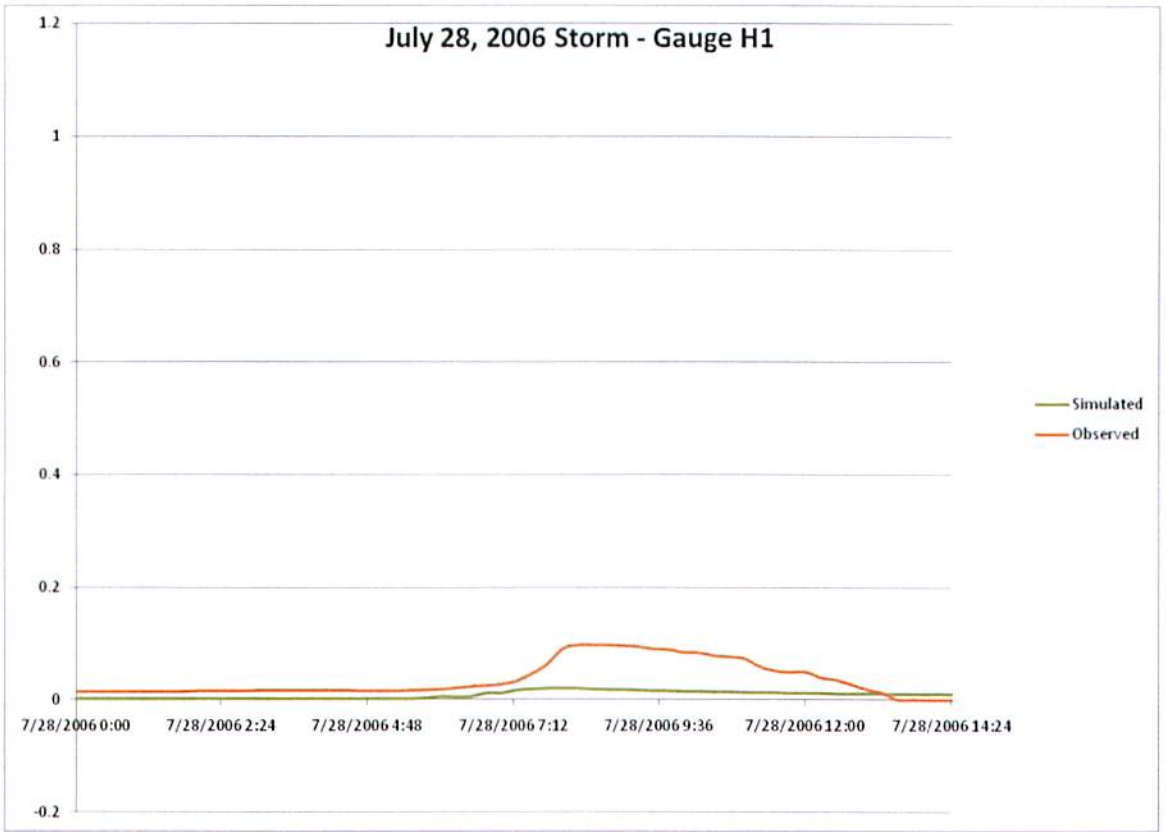
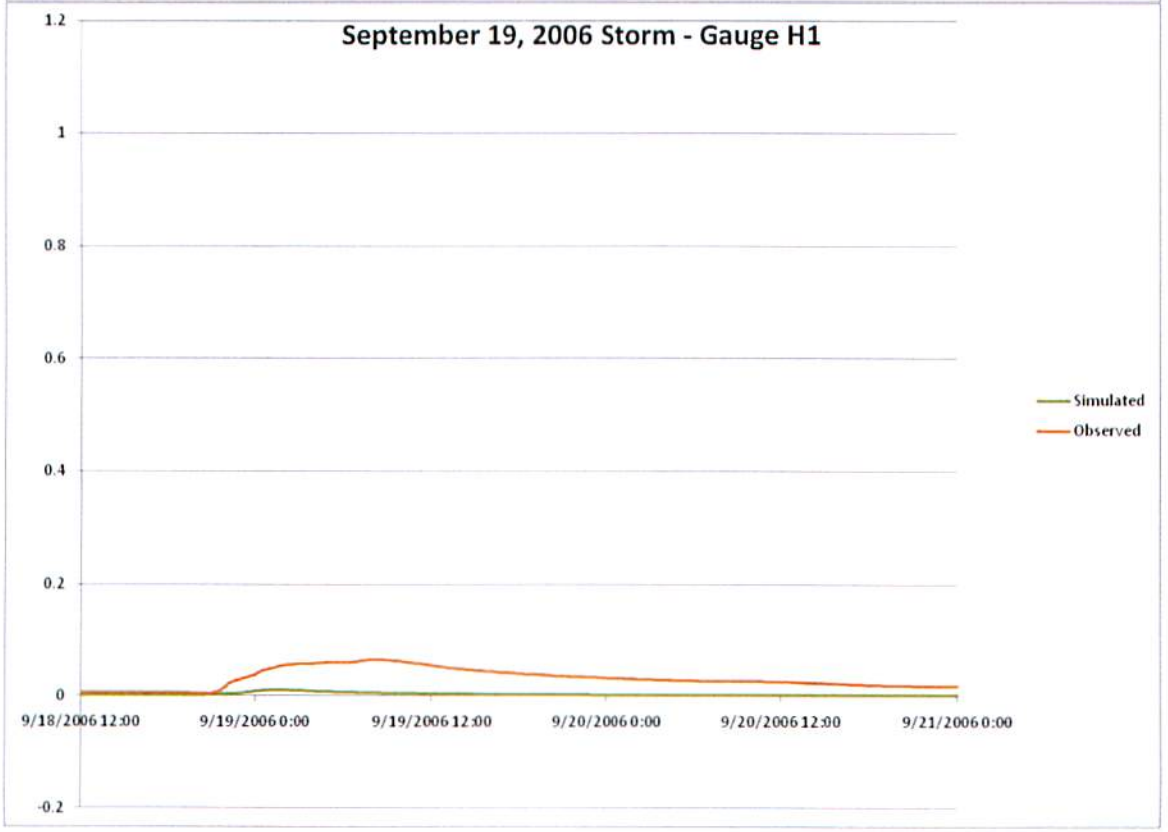
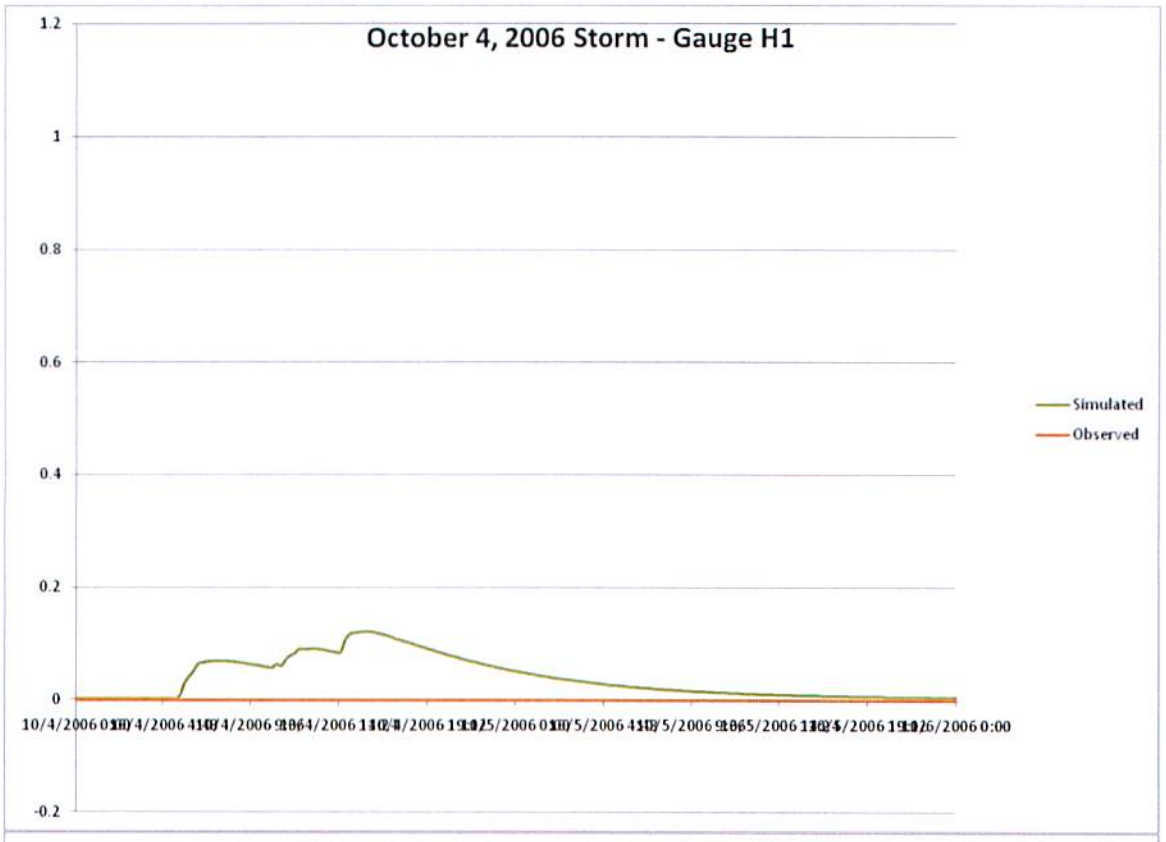
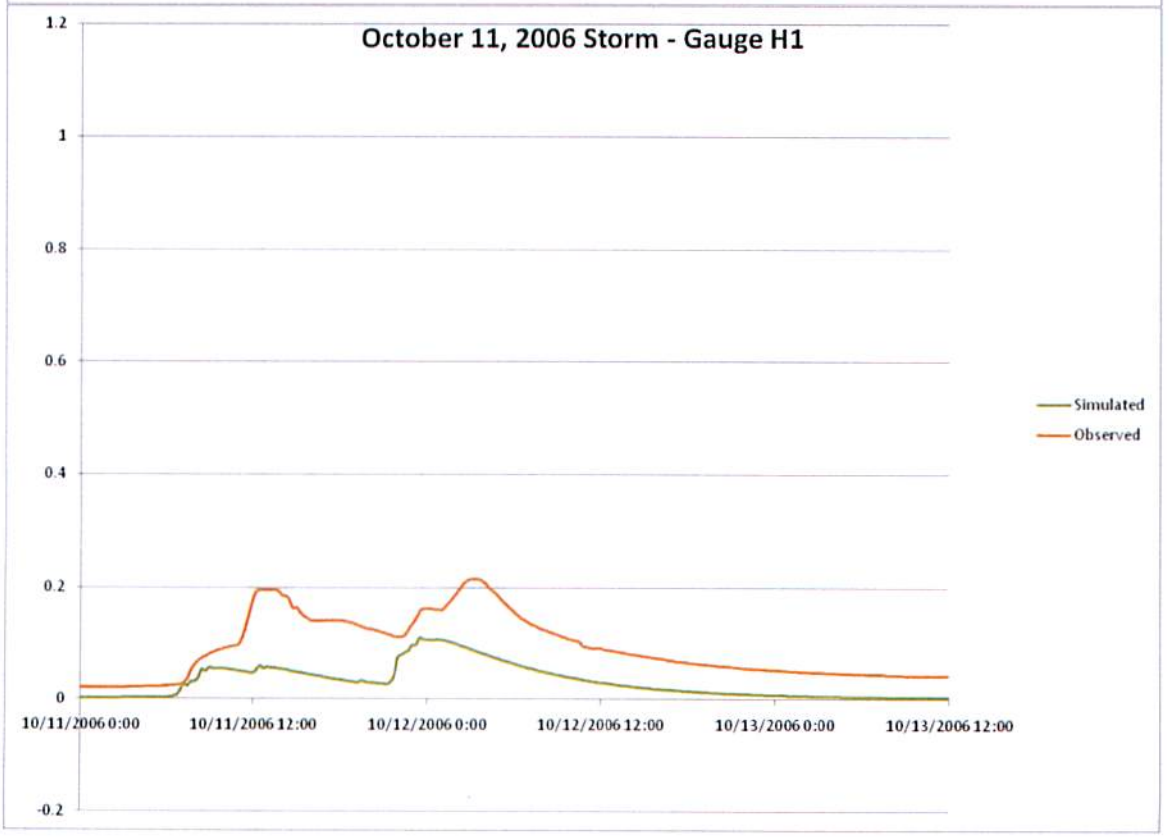
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
7/12/2006 0:00
7/12/2006 4:48
7/12/2006 9:36
7/12/2006 14:24
7/12/2006 19:12
7/13/2006 0:00
7/13/2006 4:48
7/13/2006 9:36
Simulated
Observed


July 28, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
7/28/2006 0:00
7/28/2006 2:24
7/28/2006 4:48
7/28/2006 7:12
7/28/2006 9:36
7/28/2006 12:00
7/28/2006 14:24
Simulated
Observed

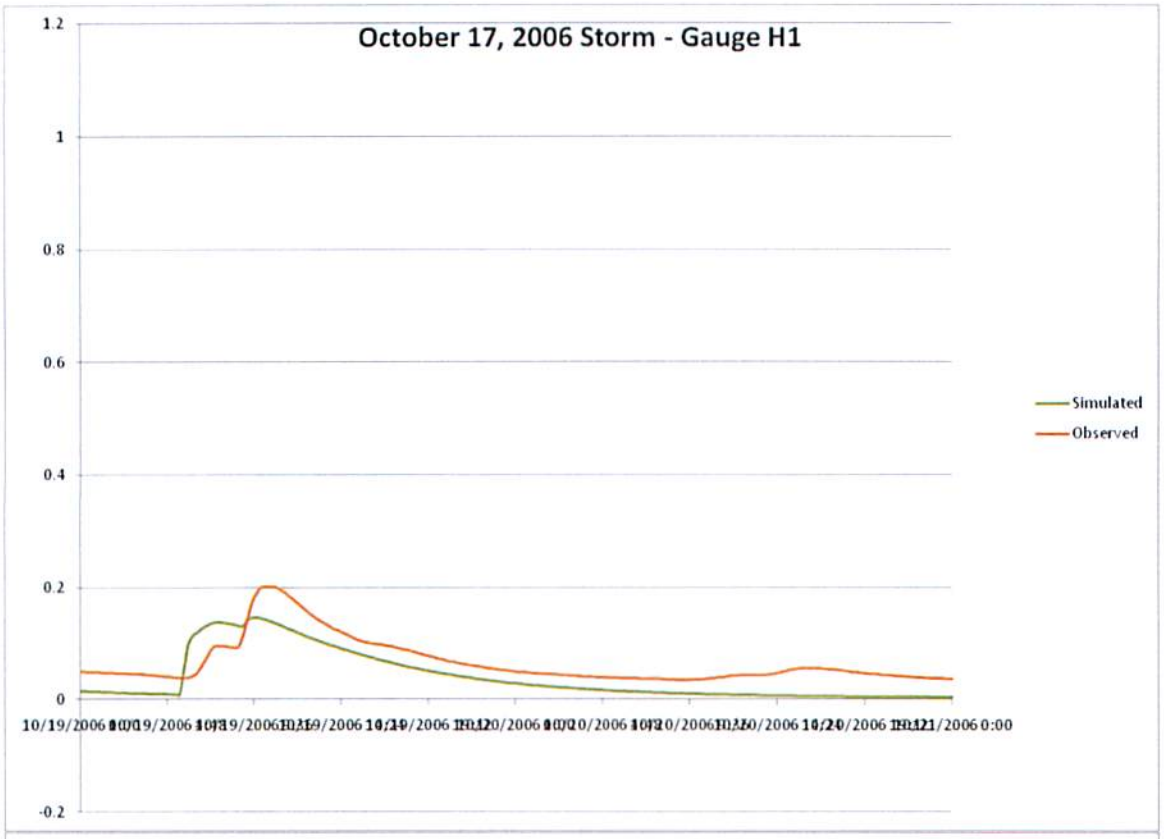

September 19, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
9/18/2006 12:00
9/19/2006 0:00
9/19/2006 12:00
9/20/2006 0:00
9/20/2006 12:00
9/21/2006 0:00
Simulated
Observed

F7-99


October 4, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Simulated
Observed
10/4/2006 0:00
10/5/2006 0:00
10/6/2006 0:00


October 11, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Simulated
Observed
10/11/2006 0:00
10/11/2006 12:00
10/12/2006 0:00
10/12/2006 12:00
10/13/2006 0:00
10/13/2006 12:00

F7-100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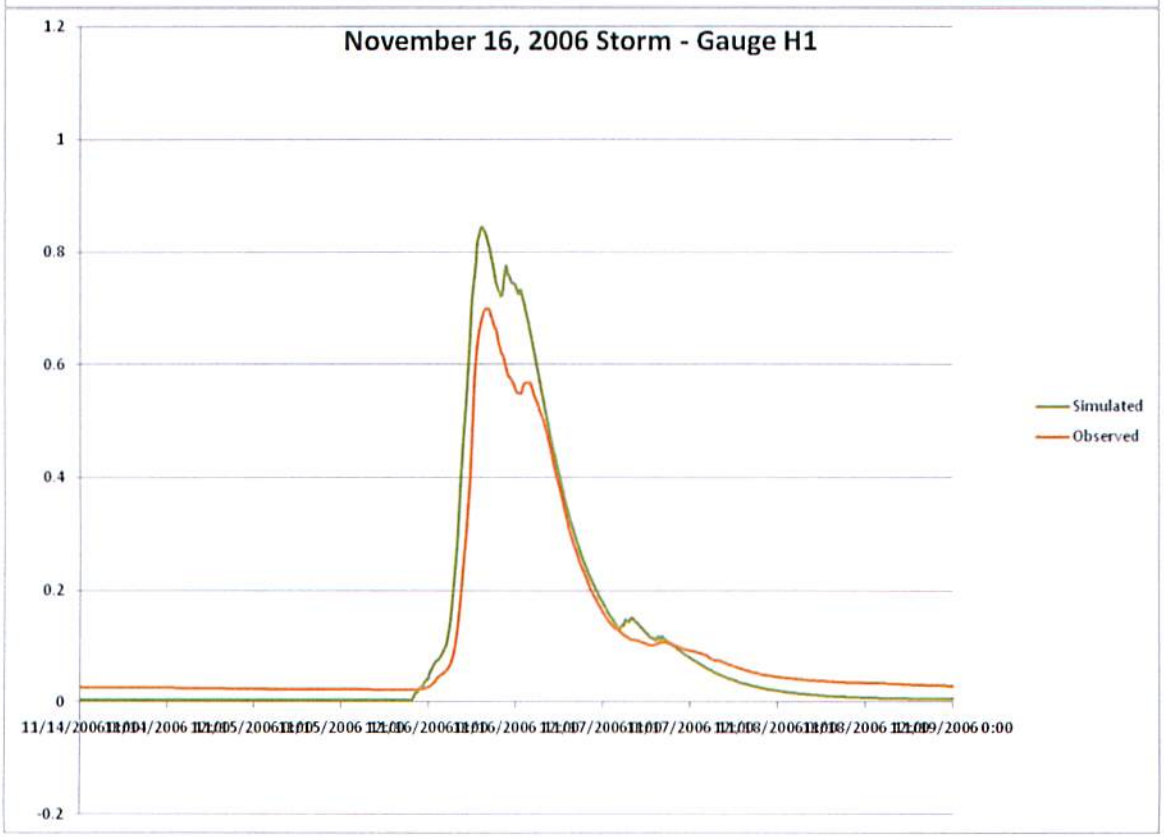
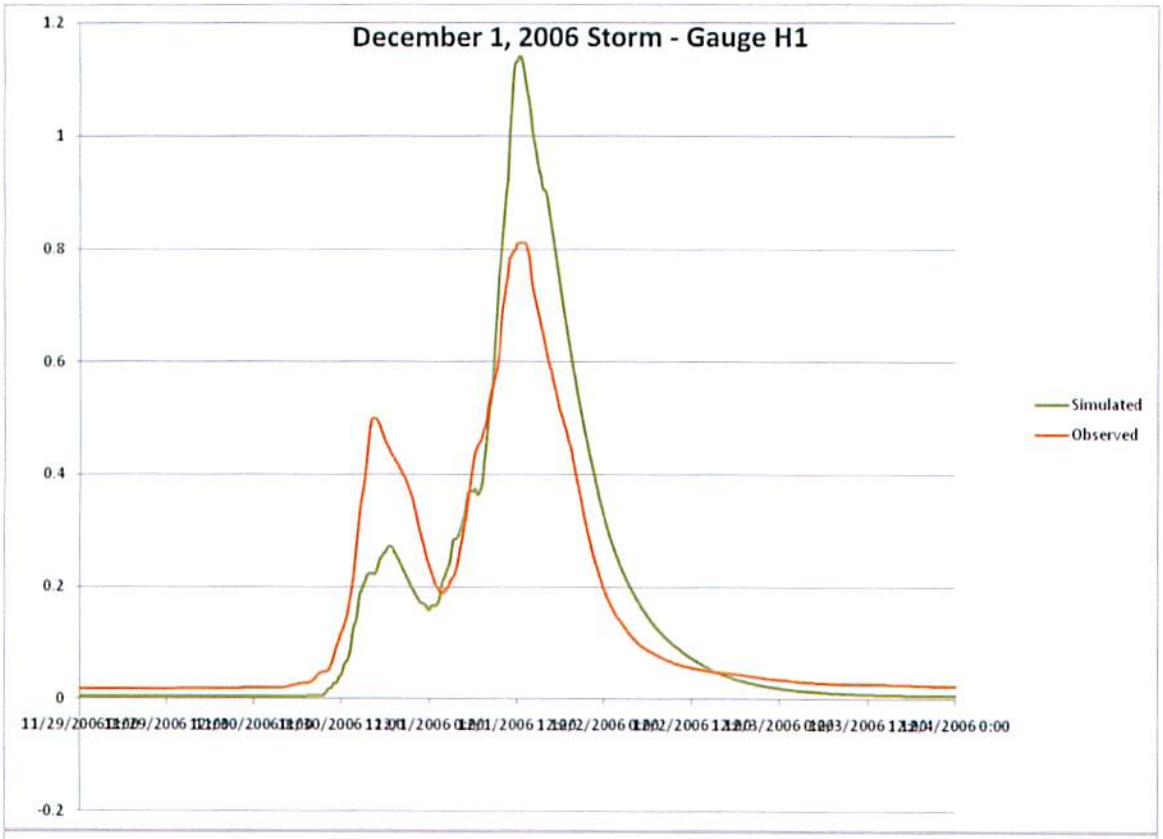
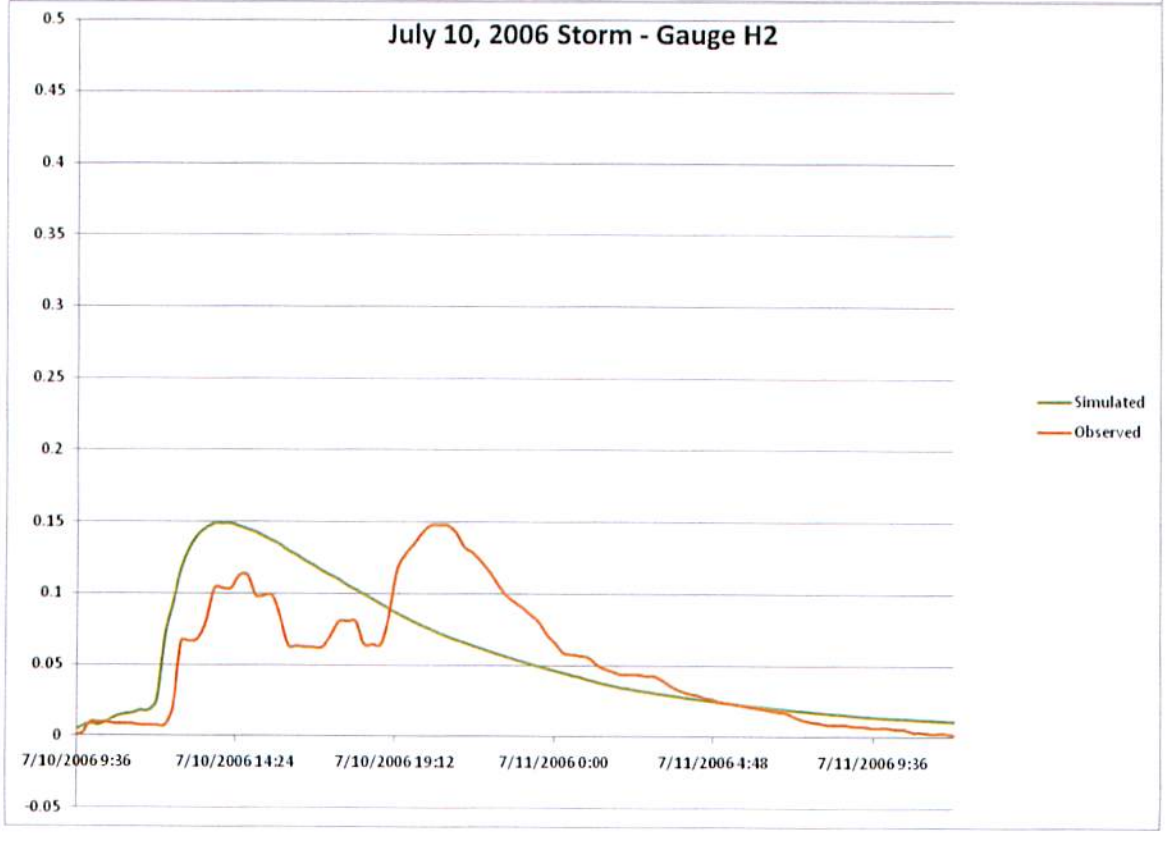
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Simulated
Observed

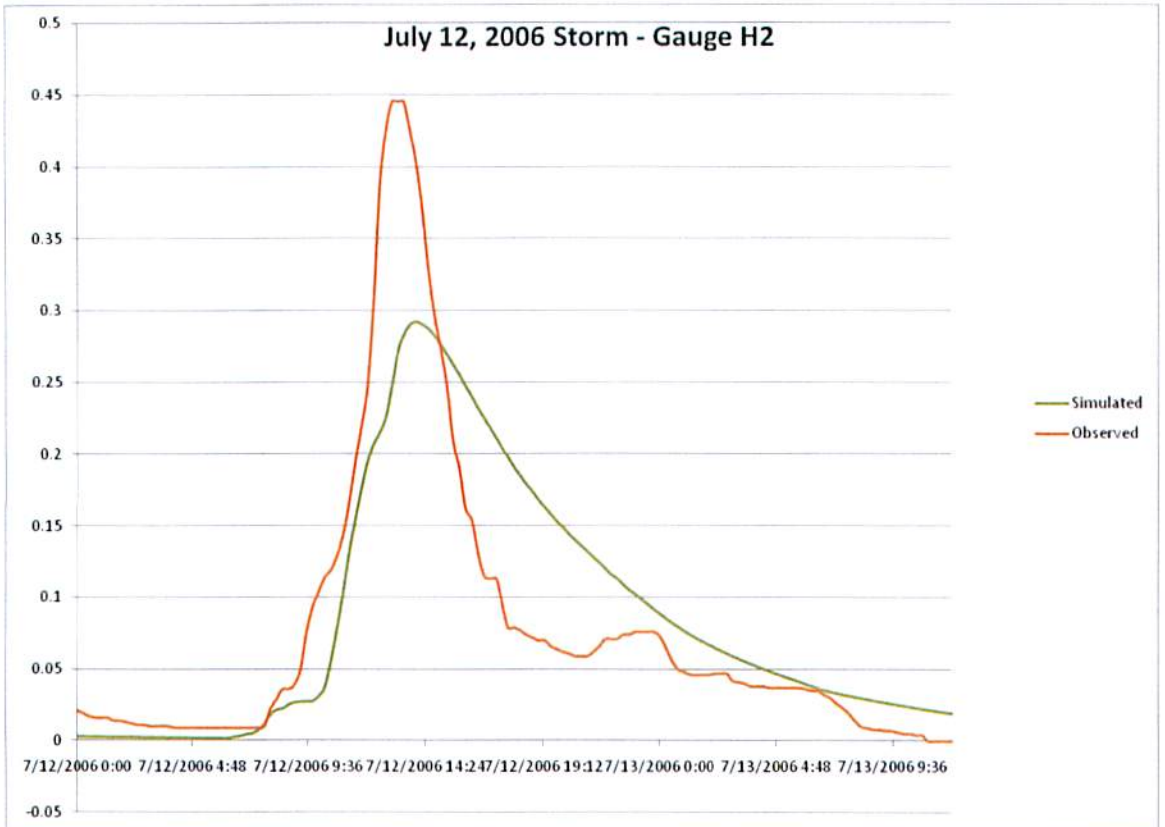

November 16, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
Simulated
Observed

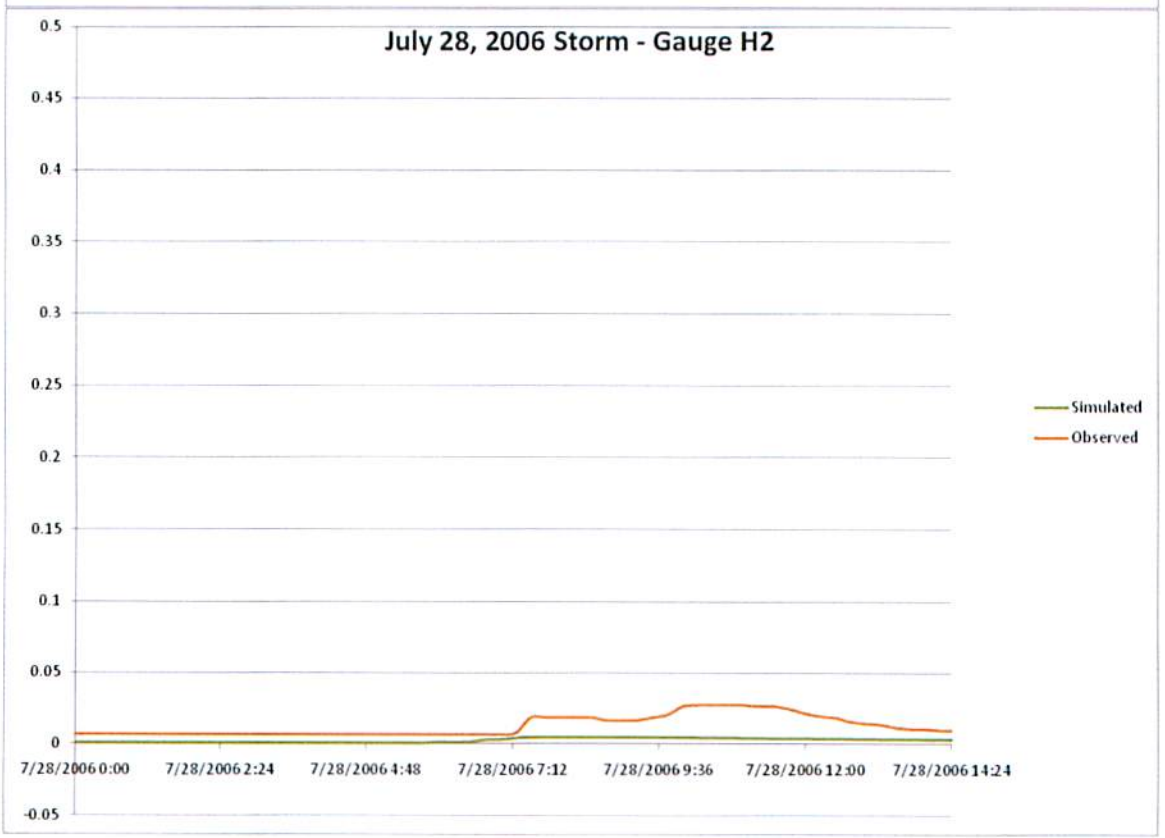
F7-101


December 1, 2006 Storm - Gauge H1
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
11/29/2006 0:00
12/4/2006 0:00
Simulated
Observed

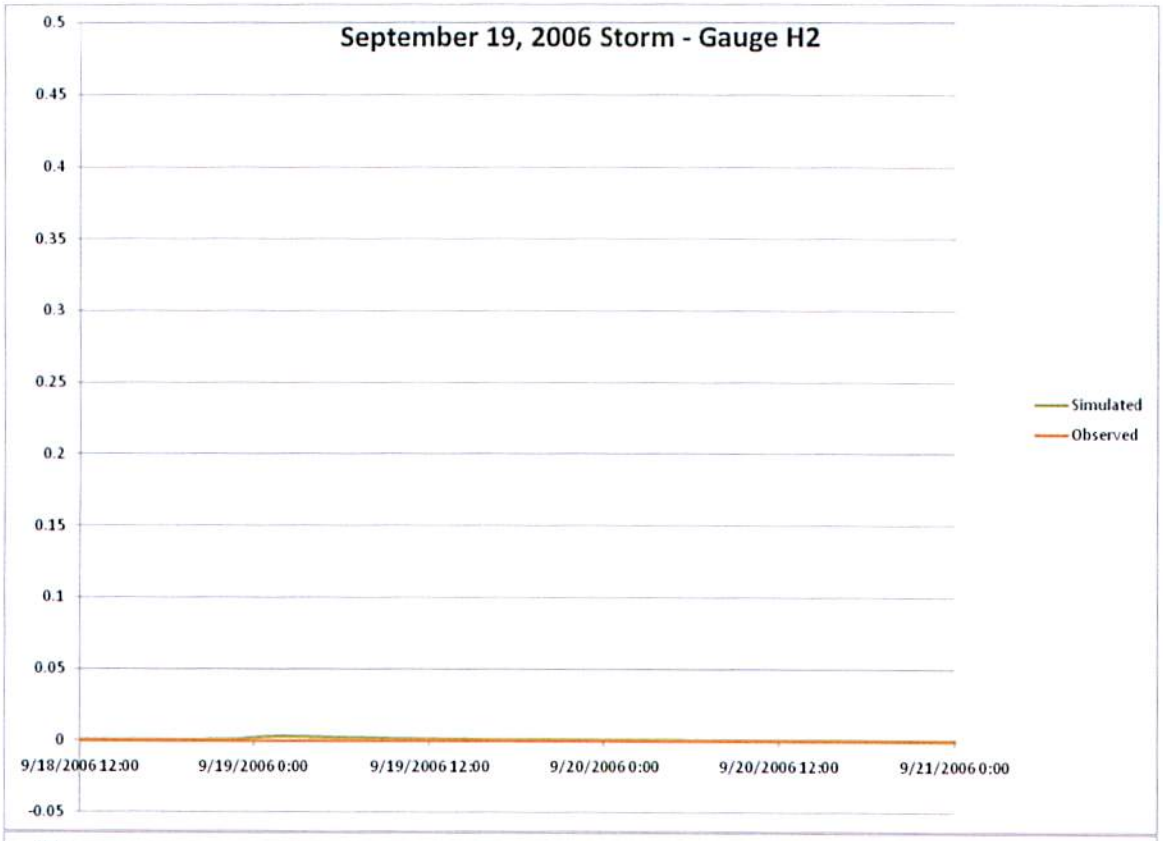

July 10, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
7/10/2006 9:36
7/10/2006 14:24
7/10/2006 19:12
7/11/2006 0:00
7/11/2006 4:48
7/11/2006 9:36
Simulated
Observed

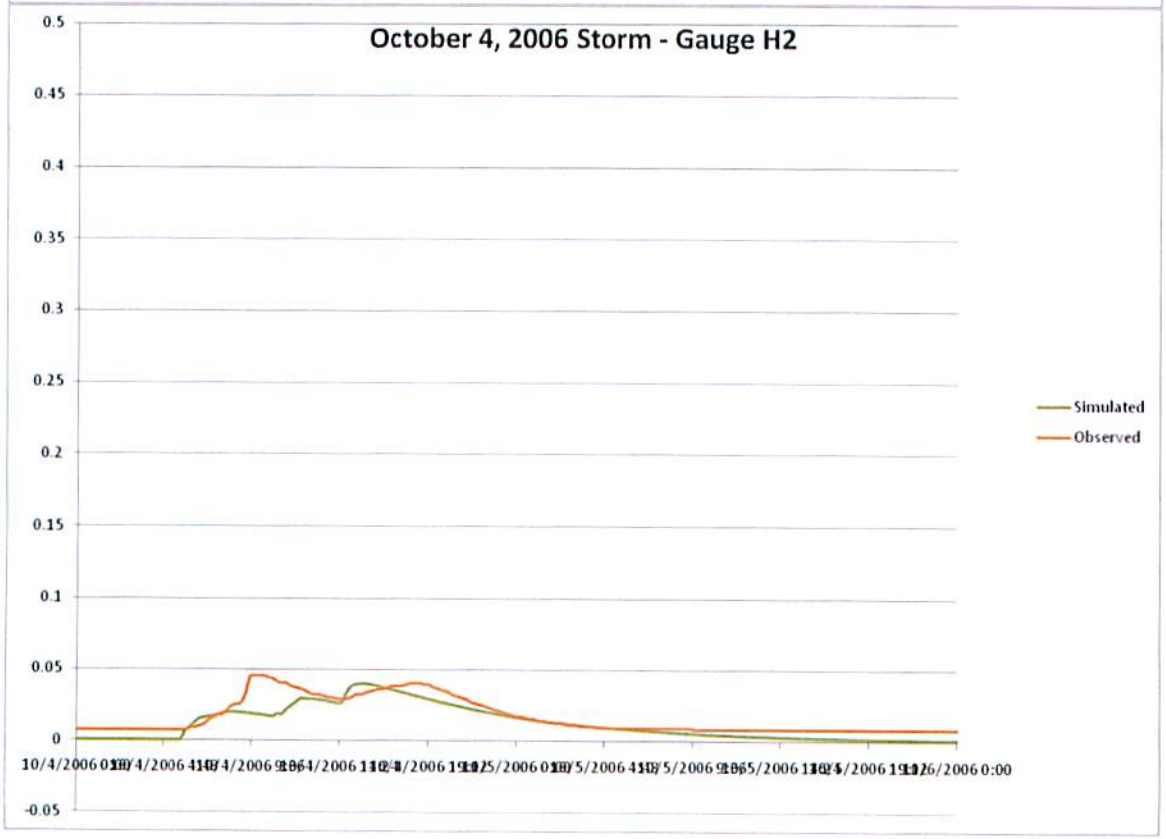
F7-102


July 12, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
7/12/2006 0:00
7/12/2006 4:48
7/12/2006 9:36
7/12/2006 14:24
7/12/2006 19:12
7/13/2006 0:00
7/13/2006 4:48
7/13/2006 9:36
Simulated
Observed

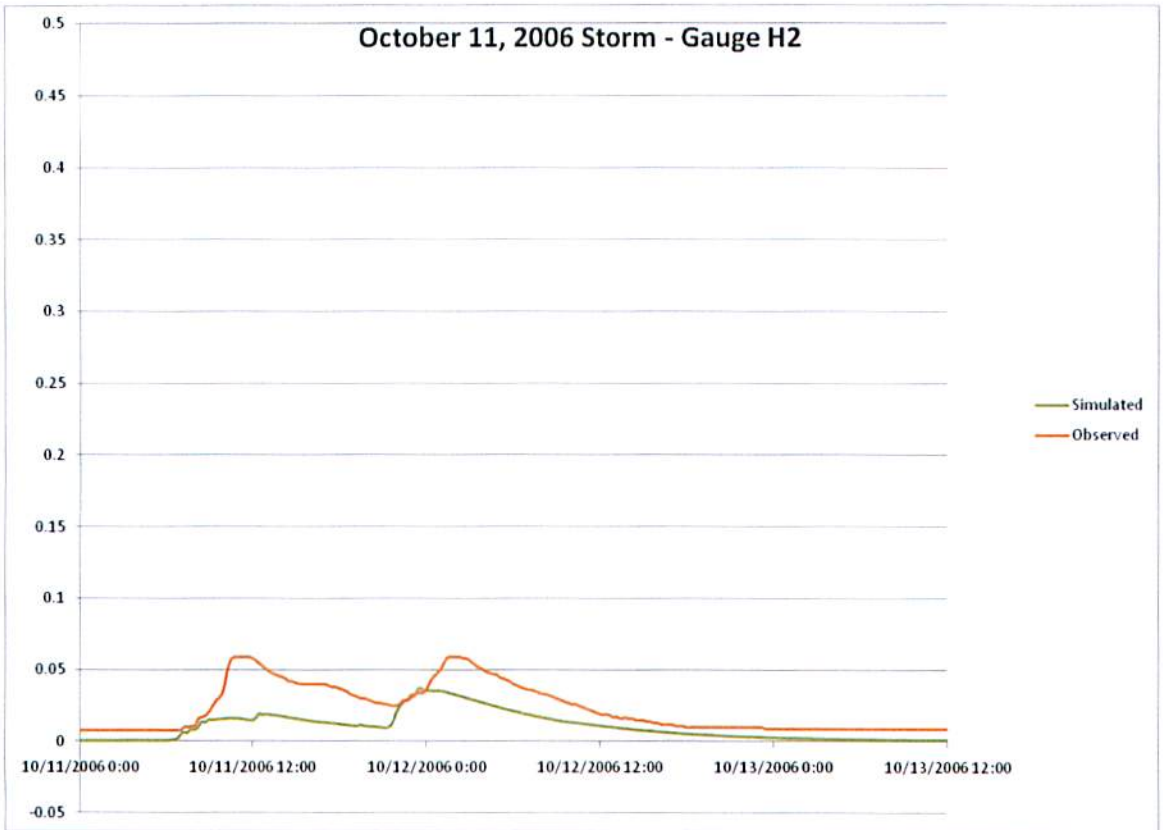

July 28, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
7/28/2006 0:00
7/28/2006 2:24
7/28/2006 4:48
7/28/2006 7:12
7/28/2006 9:36
7/28/2006 12:00
7/28/2006 14:24
Simulated
Observed

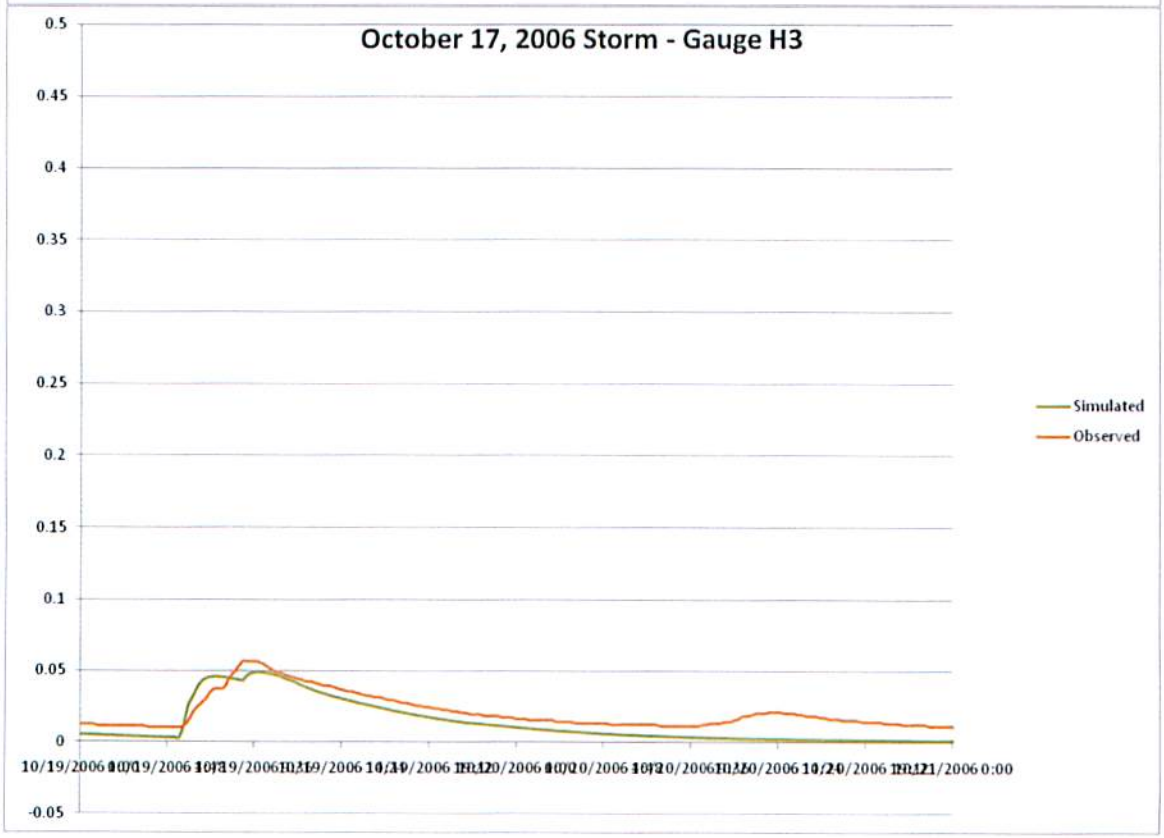
F7-103


September 19, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
9/18/2006 12:00
9/19/2006 0:00
9/19/2006 12:00
9/20/2006 0:00
9/20/2006 12:00
9/21/2006 0:00
Simulated
Observed

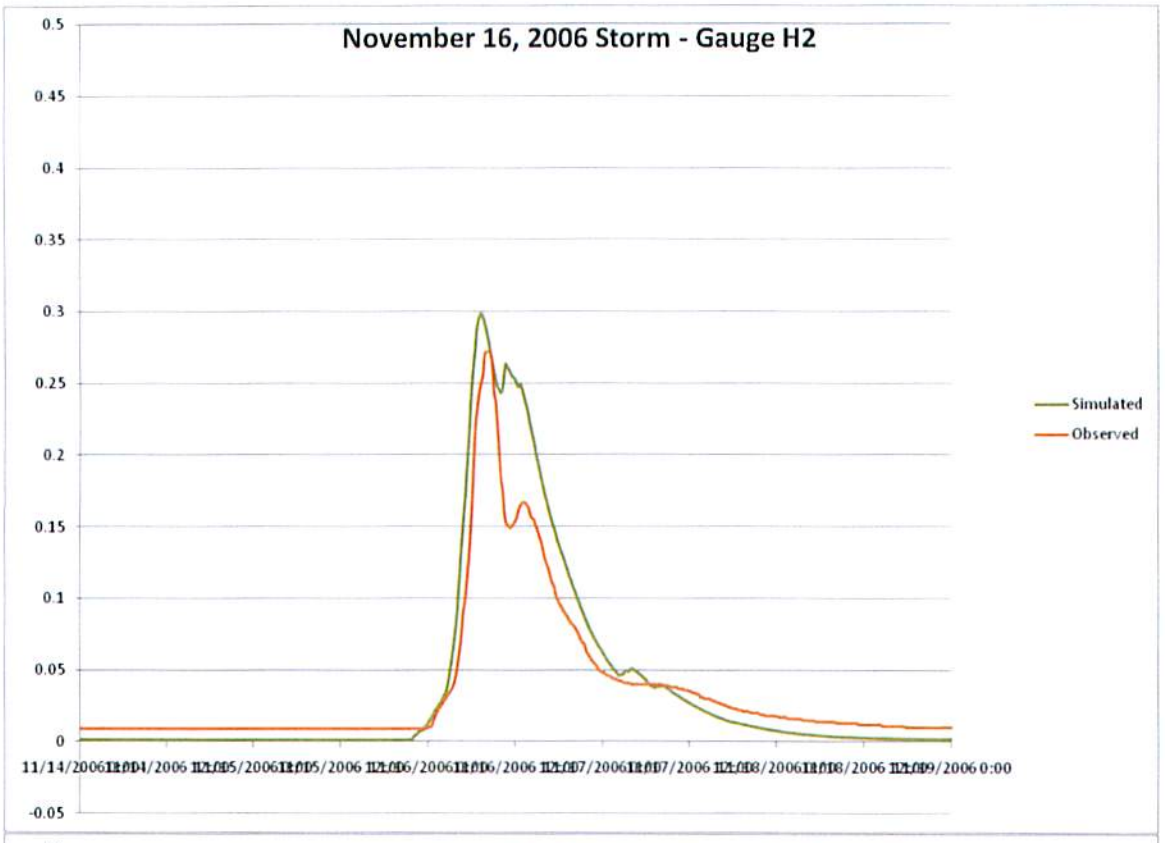

October 4, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
10/4/2006 0:00
10/26/2006 0:00
Simulated
Observed

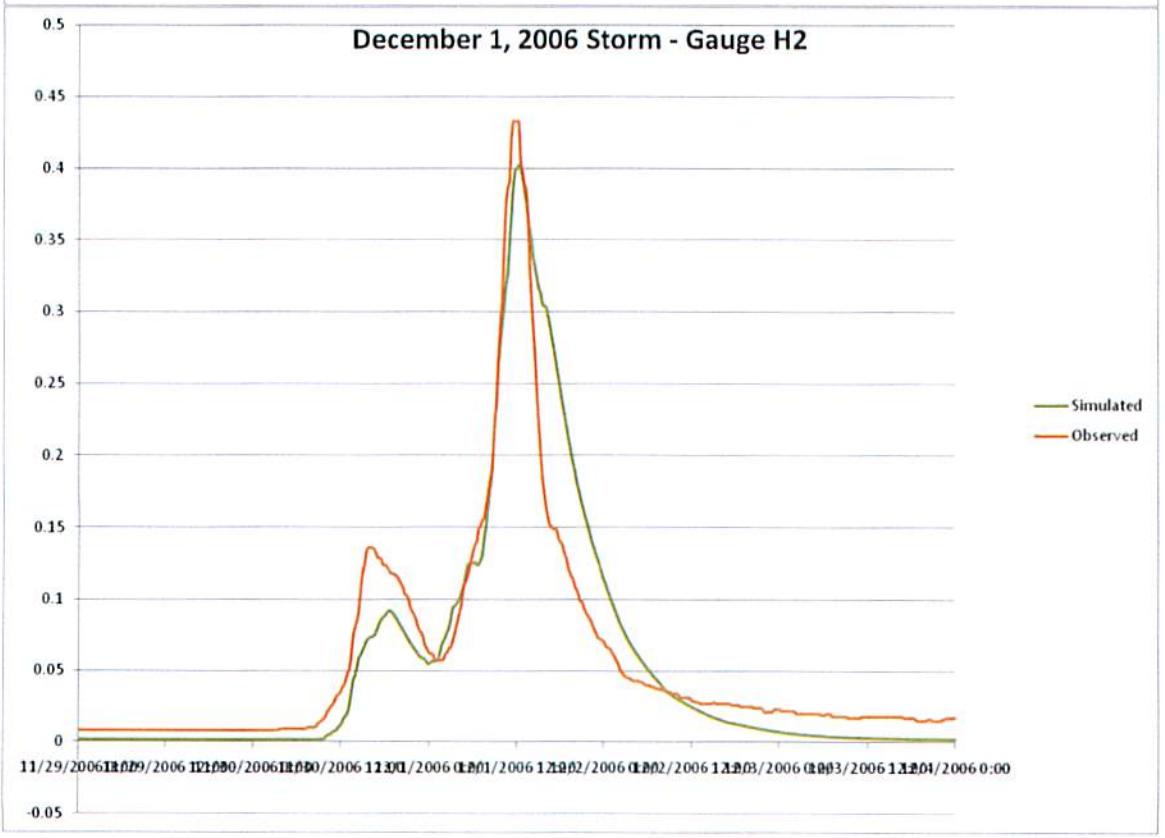
F7-104

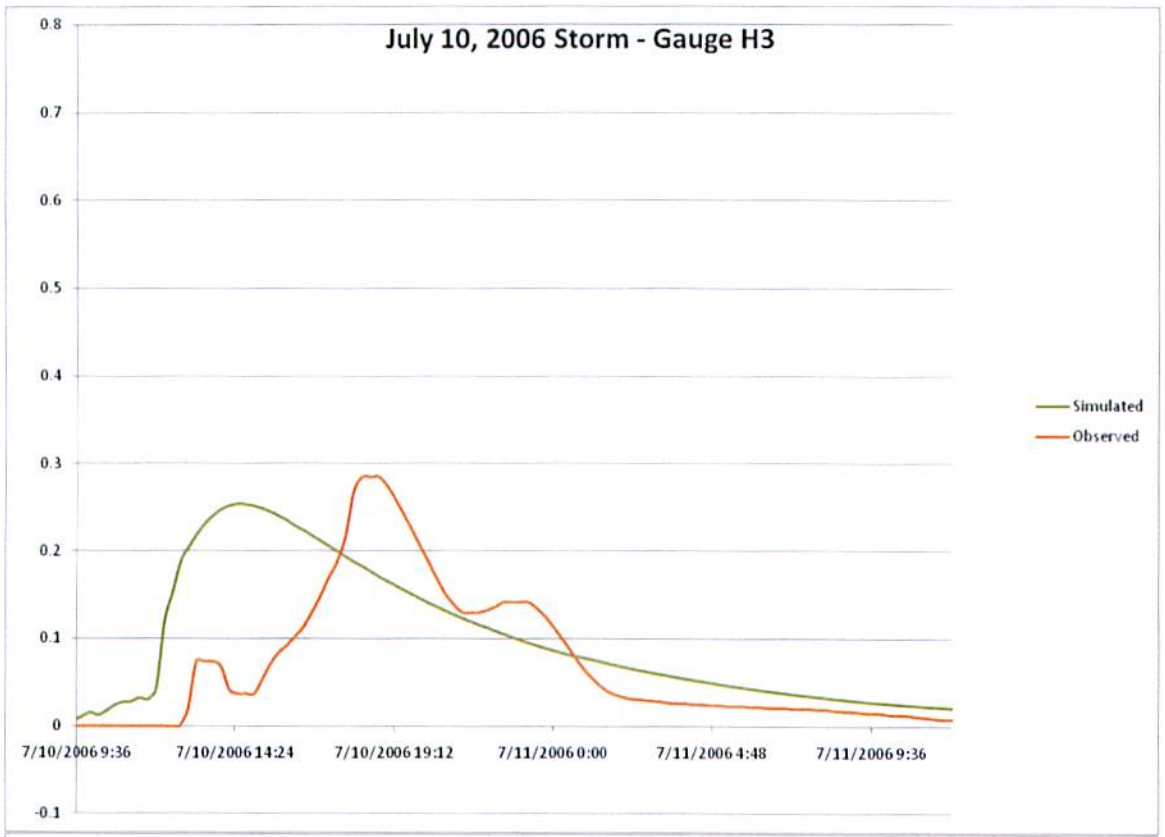

October 11, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
10/11/2006 0:00
10/11/2006 12:00
10/12/2006 0:00
10/12/2006 12:00
10/13/2006 0:00
10/13/2006 12:00
Simulated
Observed

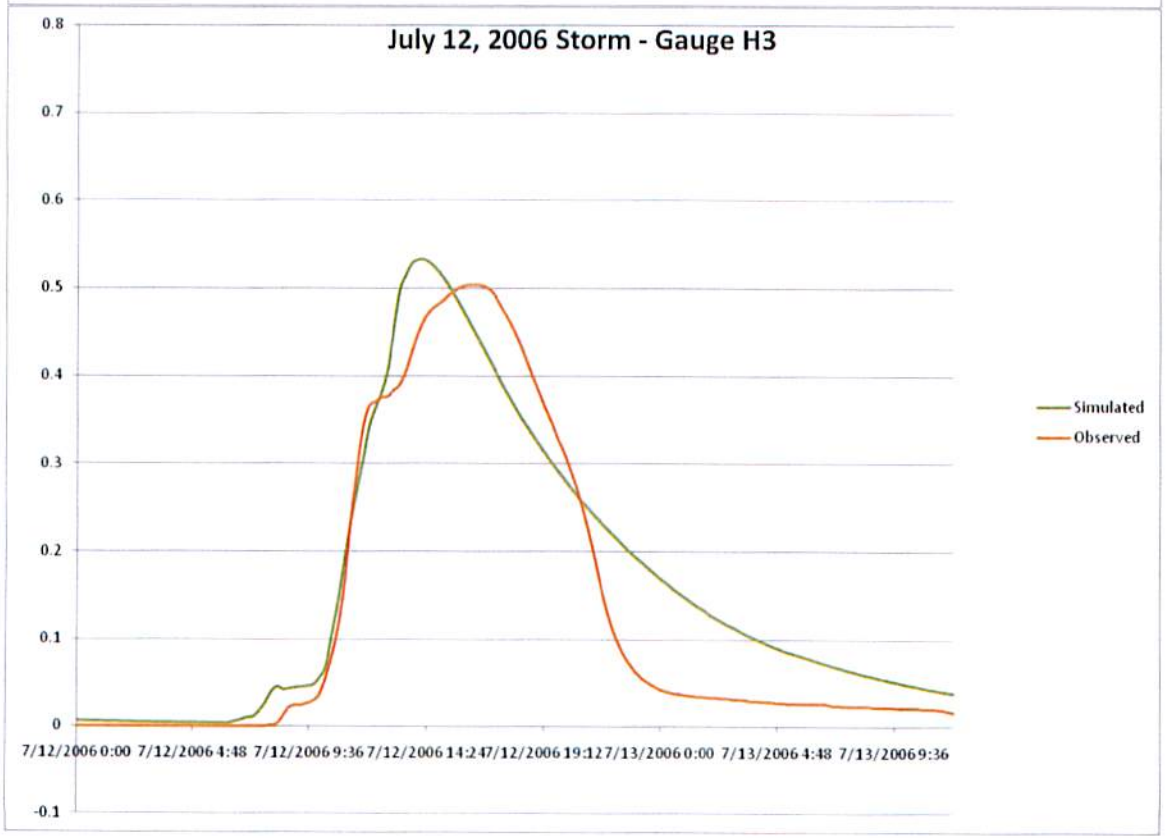

October 17, 2006 Storm - Gauge H3
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
Simulated
Observed

F7-105


November 16, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
11/14/2006 0:00
11/15/2006 0:00
11/16/2006 0:00
11/17/2006 0:00
11/18/2006 0:00
11/19/2006 0:00
Simulated
Observed


December 1, 2006 Storm - Gauge H2
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
11/29/2006 0:00
11/30/2006 0:00
12/1/2006 0:00
12/2/2006 0:00
12/3/2006 0:00
12/4/2006 0:00
Simulated
Observed


July 10, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
7/10/2006 9:36
7/10/2006 14:24
7/10/2006 19:12
7/11/2006 0:00
7/11/2006 4:48
7/11/2006 9:36
Simulated
Observed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0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
7/12/2006 0:00
7/12/2006 4:48
7/12/2006 9:36
7/12/2006 14:24
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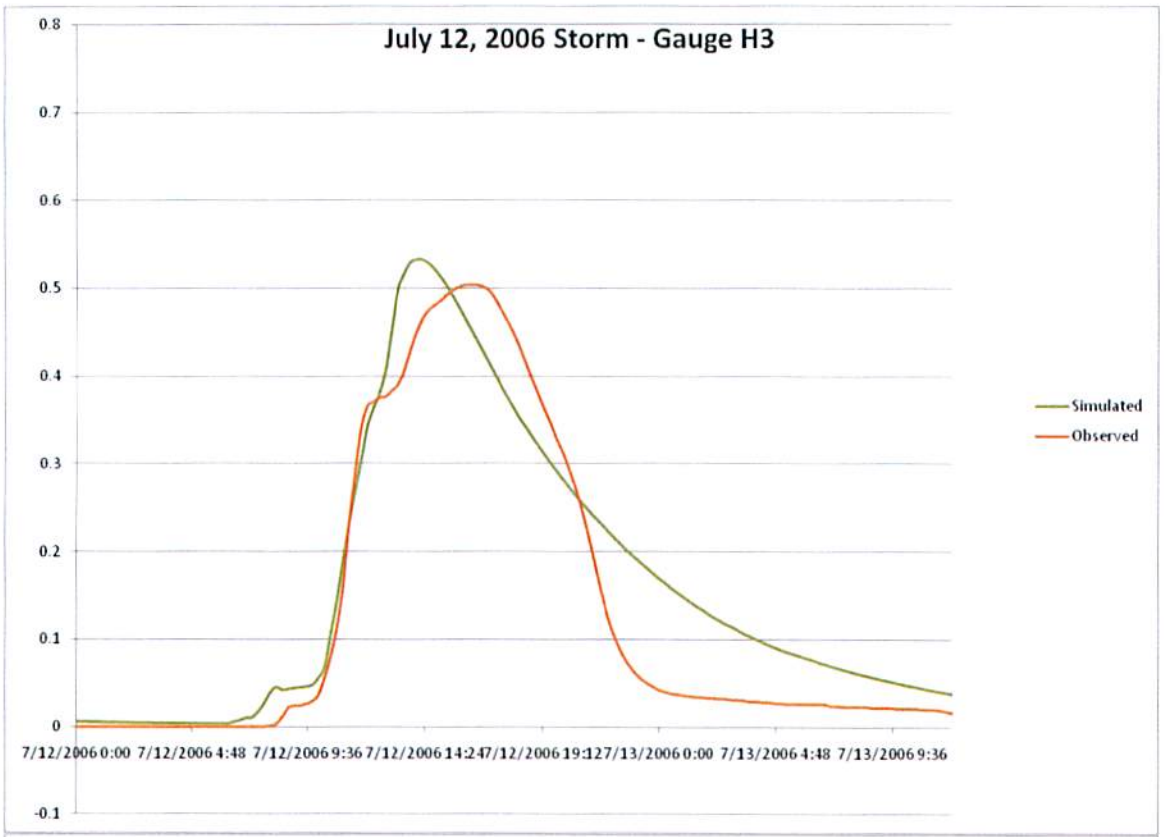
7/13/2006 0:00
7/13/2006 4:48
7/13/2006 9:36
Simulated
Observed

F7-107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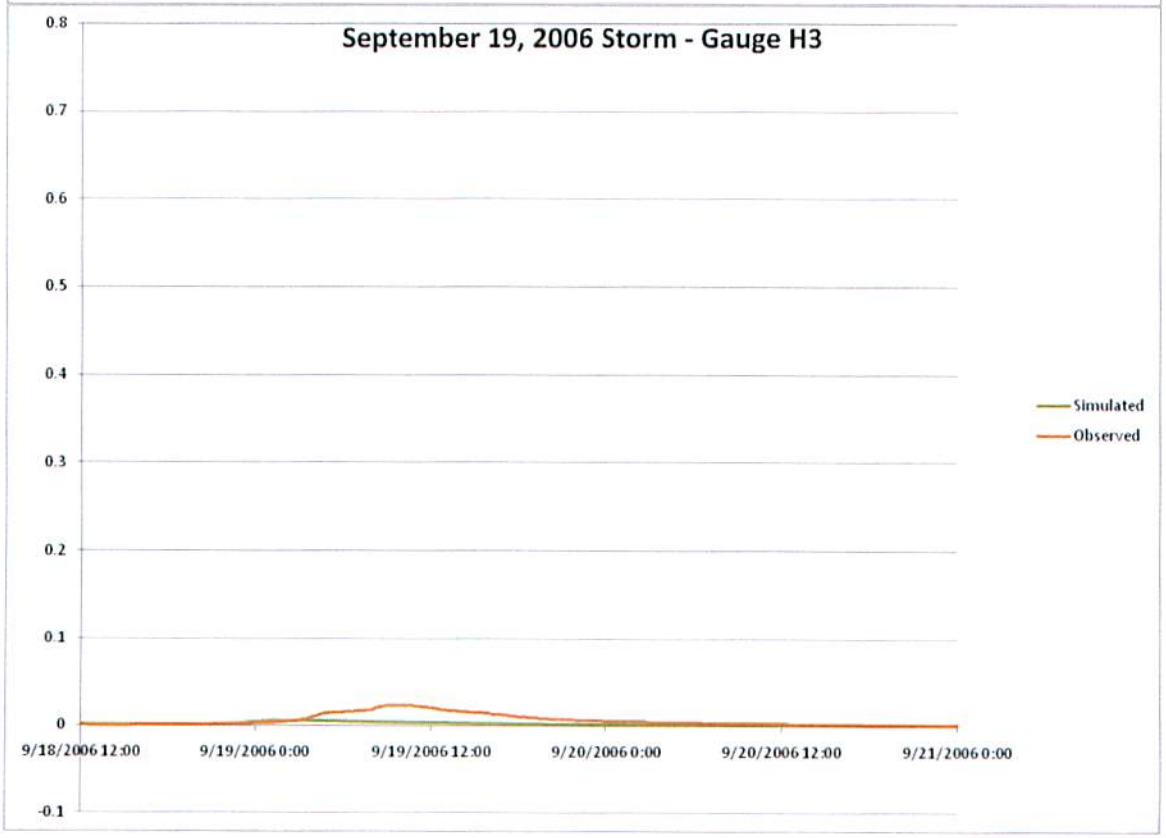
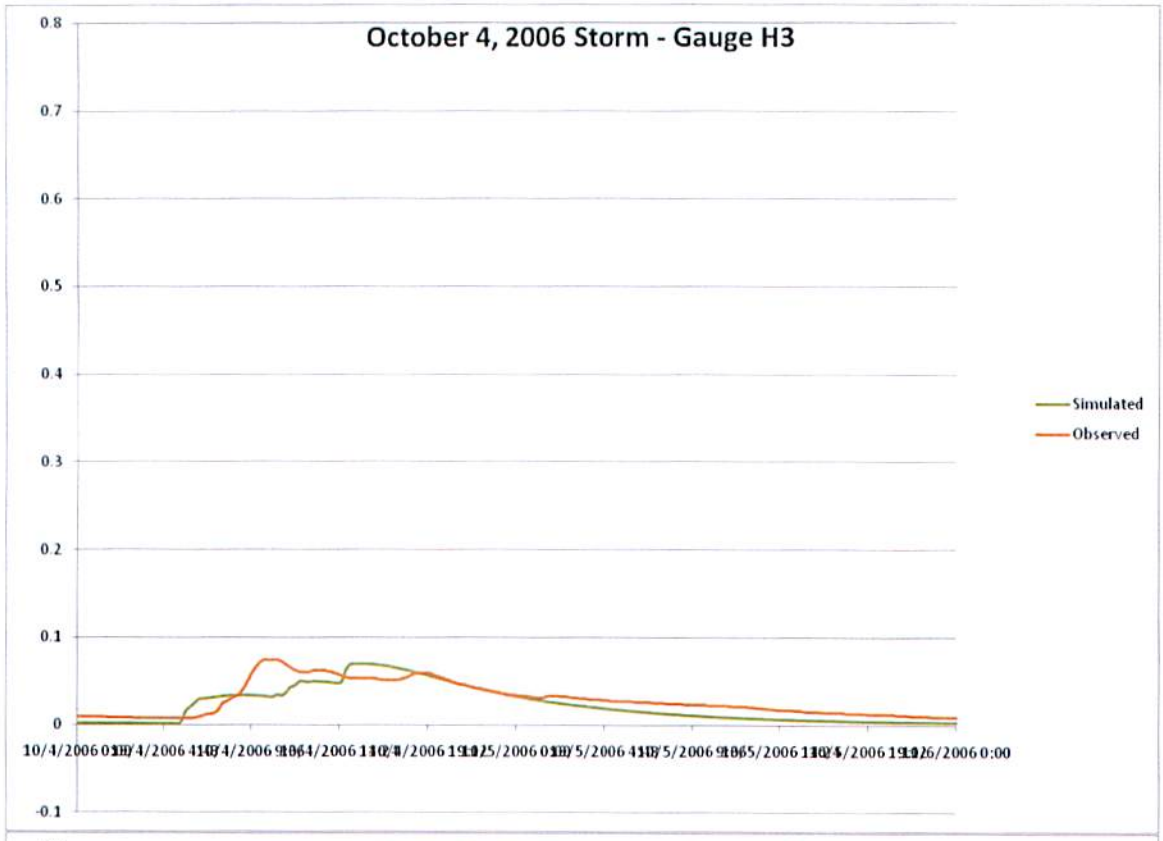
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
7/12/2006 0:00
7/12/2006 4:48
7/12/2006 9:36
7/12/2006 14:24
7/12/2006 19:12
7/13/2006 0:00
7/13/2006 4:48
7/13/2006 9:36
Simulated
Observed


September 19, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
9/18/2006 12:00
9/19/2006 0:00
9/19/2006 12:00
9/20/2006 0:00
9/20/2006 12:00
9/21/2006 0:00
Simulated
Observed

F7-108


October 4, 2006 Storm - Gauge H3
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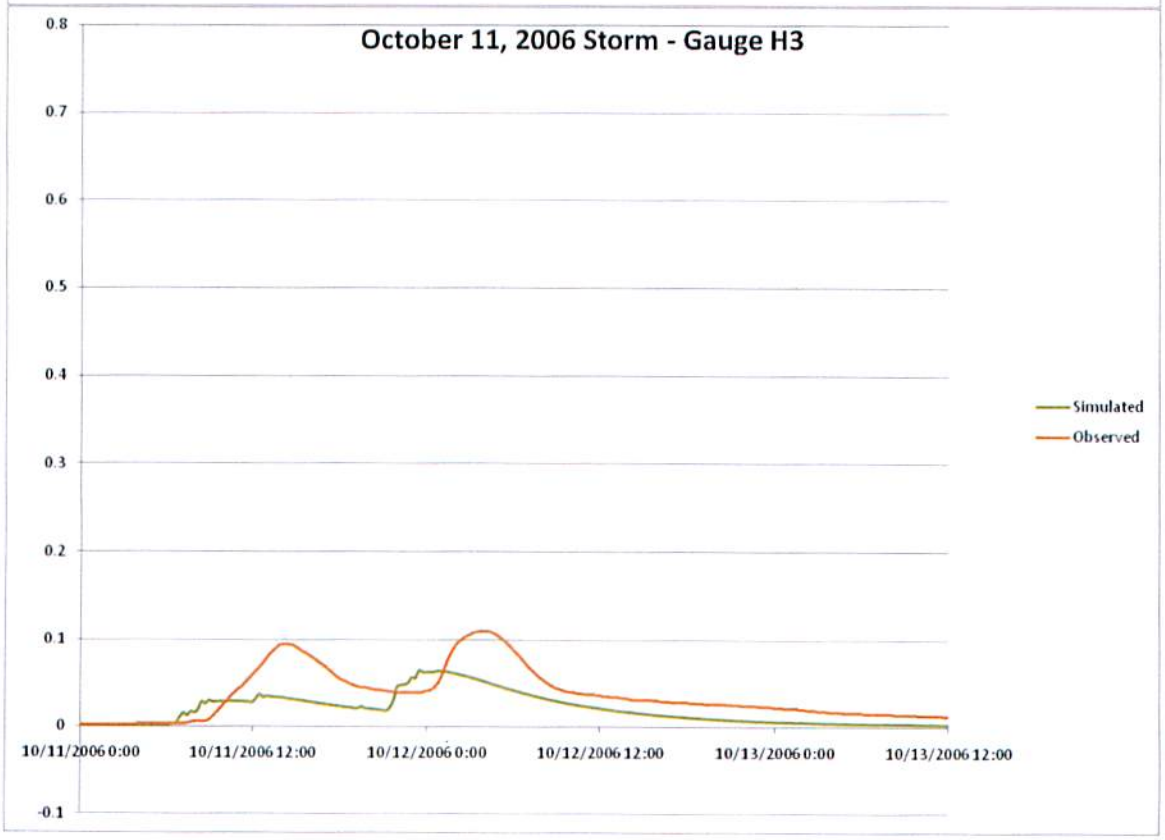
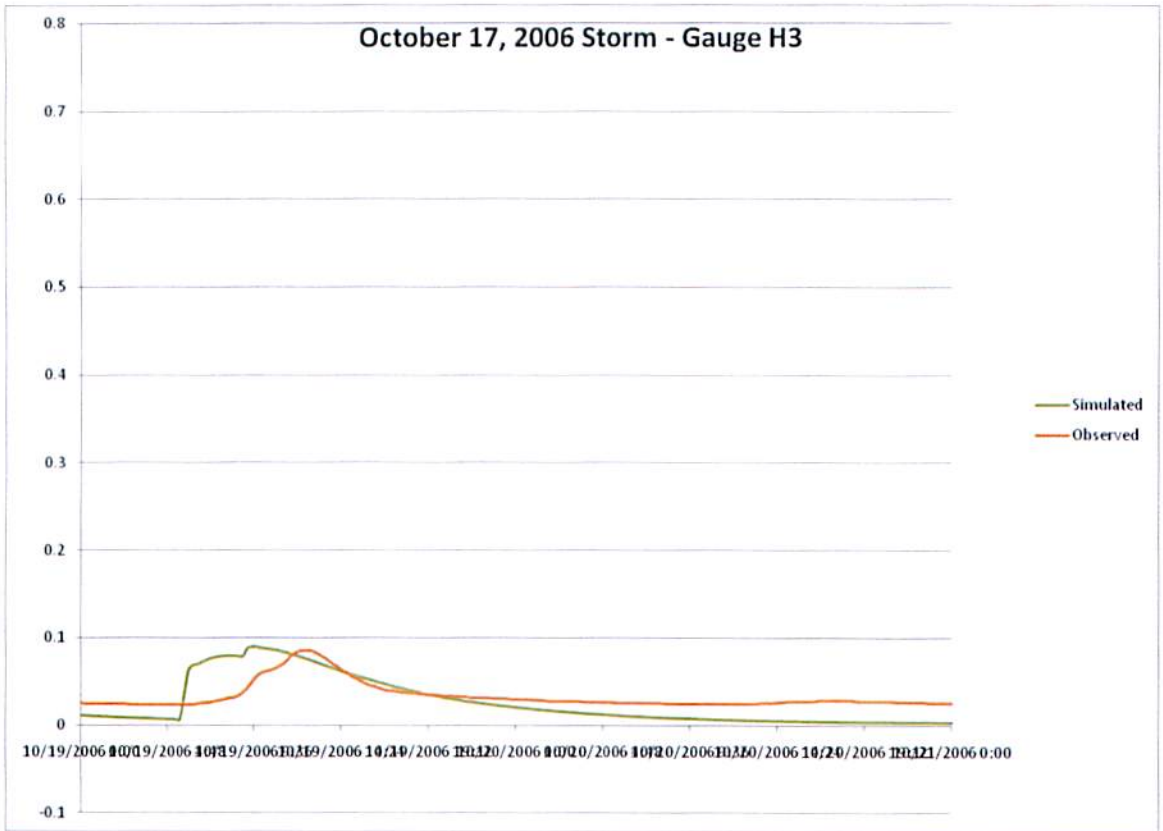
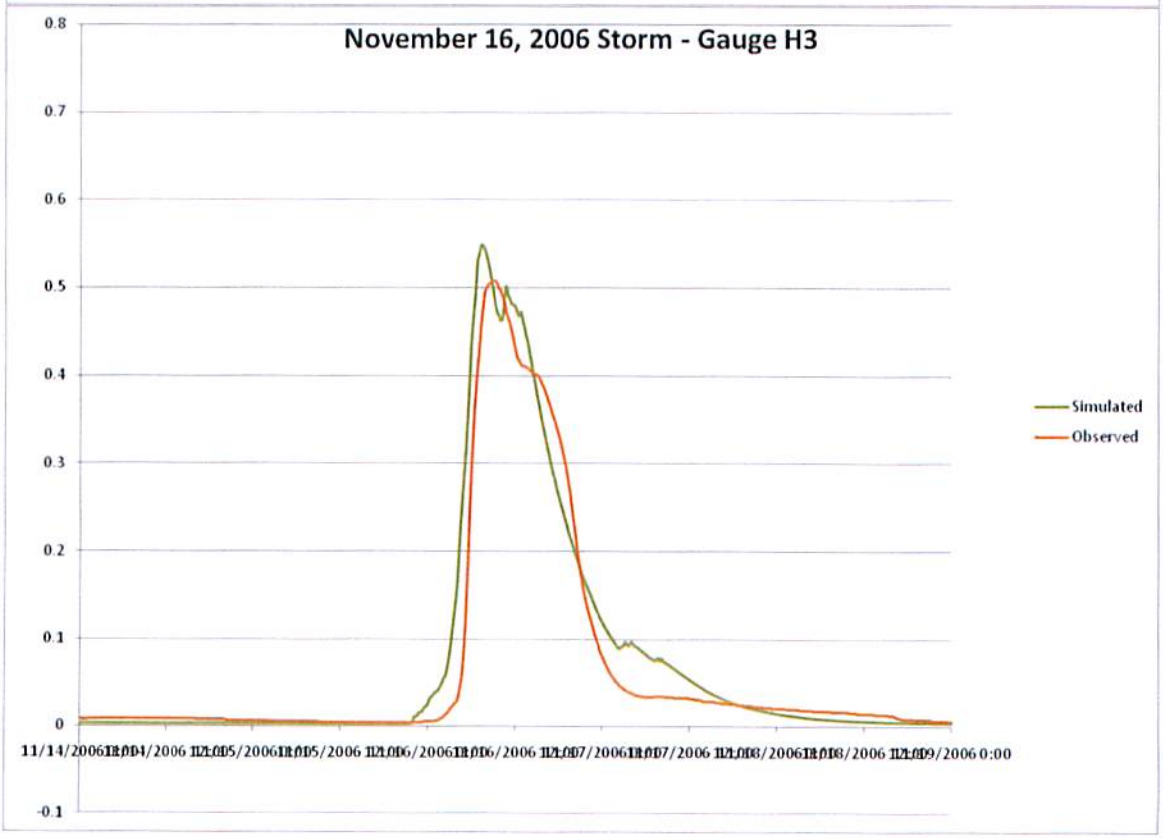
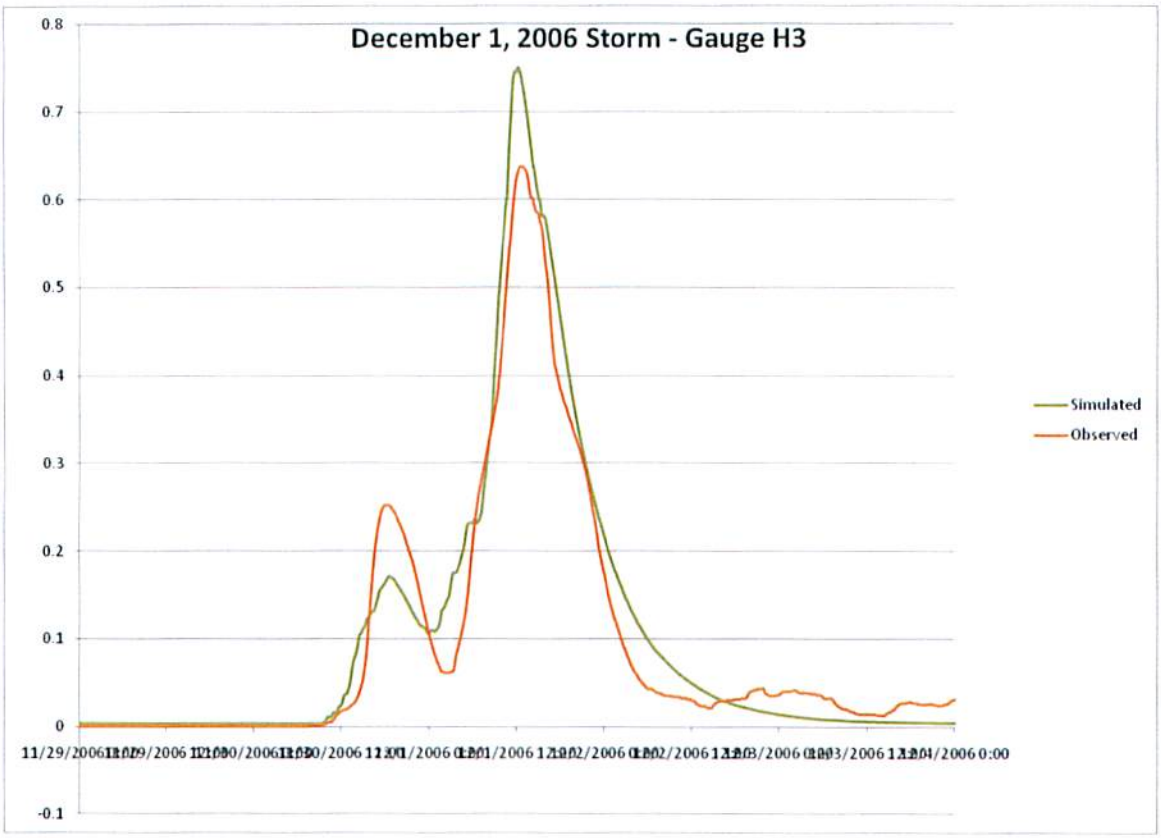
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
Simulated
Observed


October 11, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
10/11/2006 0:00
10/11/2006 12:00
10/12/2006 0:00
10/12/2006 12:00
10/13/2006 0:00
10/13/2006 12:00
Simulated
Observed


October 17, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
Simulated
Observed


November 16, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
Simulated
Observed

F7-110


December 1, 2006 Storm - Gauge H3
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
Simulated
Observed

EBNFLO Environmental

F7-111

MEMORANDUM

To: Ron Scheckenberger, AMEC Earth and Environmental

Christine Zimmer, Credit Valley Conservation

From: Robert Walker, EBNFLO Environmental

CC: Aaron Farrell, AMEC Earth and Environmental

Dave Maunder, Aquafor Beech

Jennifer Dougherty, Credit Valley Conservation

Neelam Gupta, Credit Valley Conservation

RE: Northwest Brampton, Mount Pleasant Community, Hydrologic Modelling for Testing the Second Generation (2G) Land Use Plan (March 2010).

This memorandum documents comments that I made at the meeting of June 21st held at the Brampton City Hall, specifically regarding the modelling of the generic LID for the 2G study using HSP-F. At that time I noted that the reported/modelled effectiveness of the 5 mm. generic LID (topsoil amendments) was very low in my opinion, especially in terms of increased groundwater recharge and water quality control. In my modelling experience the LID measure should provide effective control of runoff for the many small precipitation events (< 5 mm.) experienced over the course of an average year. Reported recharge increases for Huttonville Subwatershed with LIDs is less than 15 mm./y.

I have reviewed the modelling configuration of the LIDs in a file named "reslocon.uci" on a DVD titled Phase 2: Subwatershed Impact Assessment, Second Generation (2G) Land Use Plan, North West Brampton, Appendix E, March 2010. in the LID folder. This file is a user controlled input file to HSP-F containing the model parameters and configuration information. Based on the folder and file name, I have assumed this file to be a water balance modelling input file for the residential land uses on low slope areas with LIDs. I found the LID modelling configuration to be appropriate within the HSP-F context.

In short, the LID is configured to accept all direct runoff from a residential lot and roadway. The LID has a volume determined by multiplying the impervious area of the typical one hectare modelling unit by the 5 mm. (0.005 m.) of captured runoff. In a medium density residential area the imperviousness is assumed to be about 50% or 5000 m2/h. Thus the volume of captured runoff per event is 5000 m2 X 0.005 m = 25 m3 or less, on a per hectare basis. Any additional runoff inputs to the LID, beyond its capacity, will be discharged as overflow to storm sewers (surface runoff). Underflow from the LID replicates recharge to groundwater and occurs at a rate similar to local infiltration rates. The lowest infiltration rate for the study area is modelled as 0.38 mm/h. and should be effective over the whole pervious area, 5000 m2. Thus following the cessation of rainfall and further runoff inputs, the LID should fully drain within about, 5

mm./(0.38 mm./h) = **13.2 hours**. The underflow rate should be about 1.9 m3/h. This effective rate of drainage will leave the LID drained and ready for the next storm and will recharge the groundwater with 5 mm. of water, somewhat more than the native till would allow over the course of the storm. Clearly, the advantage of the LID is that it retains the first flush of storm runoff and allows this water the time to infiltrate many hours after the storm.

The rate of LID discharge in the model input file is found in the FTABLES block for RCHRES #'s 216 – 218 (medium density residential with 3 soil types) and #s 228 to 230 for high density residential LIDs. An underflow rate of 0.000029 m3/s (0.104 m3/h) is found in the file for all 3 soil types with medium density. At this rate the LID would require about 240 hours (10 days) to drain and thus, it would rarely be empty before the next storm and it would be significantly less effective over the course of a year. I believe that the underflow rate for till is highly understated and more so for more permeable soil types. I have looked at the associated non residential land use file and it has similarly low values for LID underflow rates.

I recommend that AMEC check the mathematics for the LIDs for all land uses and soil types and adjust underflow rates for all 3 soil types modelled to be in line with infiltration rates used in the streamflow modelling.

I hope this helps to fine tune the model prior to the next round of modelling. If I have misinterpreted the files and not clearly understood the configurations used, I apologize. I also hope that the future modelling can demonstrate that well functioning LIDs can potentially greatly improve local water quality, increase groundwater recharge, reduce temperature shock and help to attenuate stormwater peak flows, as many who attend project meetings remain skeptical about these systems. This skepticism leads to resistance to adopt new management techniques, despite the clear necessity to develop our new cities in a more environmentally compatible manner.

Robert R. Walker, M.Eng., P.Eng.

EBNFLO Environmental

F7-113

PHILIPS ENGINEERING

Revised Meeting Minutes

Reissued Date: March 9, 2009
Our File: 106123-75

Subject: LID/BMP Measures, Hydrologic Modelling Approach
Mount Pleasant Community, North West Brampton

Date: February 19, 2009

Time: 11:30 a.m.

Location: City of Brampton, Boardroom 3B

In Attendance:

Neal Grady	➢	City of Brampton
Hamid Hatami	➢	City of Brampton
Klaus Stolch	➢	City of Brampton
Michael Wan	➢	City of Brampton
Frank Mazzotta	➢	City of Brampton
Christine Zimmer	➢	CVC
Jen Dougherty	➢	CVC
Dan Banks	➢	CVC
Bob Walker	➢	EBNFLO
Joanne Thompson	➢	R. J. Burnside
Dave Leighton	➢	Urbantech
Nancy Mather	➢	Stonybrook Consulting
Bill Blackport	➢	Blackport and Associates
Aaron Farrell	➢	Philips Engineering Ltd.
Ron Scheckenberger	➢	Philips Engineering Ltd.

MATTERS DISCUSSED **ACTION BY:**

1. Introduction

Ron Scheckenberger introduced the meeting indicating its purpose to discuss modelling assumptions related to LID BMP's for both surface and groundwater. Ron noted that this represents the fourth modelling meeting and the sixth associated with LID.

Ron outlined that the May 2006 approved Terms of Reference state that *"a minimum of three land use scenarios will be evaluated to assess impacts on the receiving stream and terrestrial system of the*

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study area. A form of LID must be considered for each scenario....". Ron distributed the description of LID from the Terms of Reference and indicated that it is more than just the application of various BMP's, but rather an approach to overall site design.

Ron indicated that the Team is currently conducting the Impact Assessment on the first of three (3) land use scenarios, referred to as the Point of Departure Plan. Ron stressed that the meeting was to focus on ***how*** to effectively model the LID measures, given the tools which are currently available, and ***where*** to apply these measures and to ***what*** extent.

Ron advised that the previous meetings of October 8, 2008 and February 2, 2009 focussed on the specific LID's and the various perspectives (CVC, Landowner, and City) on these BMP's. Ron stated that this information will be incorporated into the Impact Assessment and Final Reporting, in order to be used as part of future Block Planning and Functional Servicing Reporting. **Team**

2. **Recap of Previous Modelling Meetings**

Ron Scheckenberger conducted a review of the previous modelling meeting minutes of February 14, April 22, and August 25, 2008. Highlights from previous meetings included:

i) Use of CVC Water Quality model to evaluate water budget, water quality, and temperature.

ii) Philips provided a proposed approach to modelling, along with measures for contaminant loading and BMP removal efficiency.

iii) City provided unit counts for various impervious coverages; City to forward to CVC. **City**

iv) Philips provided event mean concentrations from Phase 1 Characterization for use in the study.

v) Climate Change modelling approaches were discussed including parallel preparation of Climate Change Guidance Manual (Note: Bob Walker advised that this has involved developing a Draft methodology, data for assessment, and the case study which should be completed within two months). **EBNFLO**

vi) New mapping prepared for area soils and groundwater levels based on new information from landowners; information to be provided to CVC by landowners and Blackport. **Landowners/ Blackport**

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vii) Discussion related to functionality of LID BMP's in tight soils.

viii) Issues raised regarding long-term reduced effectiveness (redundancy) of BMP's on private lands.

ix) Limitations of what can and can't be modelled by CVC model was discussed.

x) Landowners requested City input on LID in order to develop block plans.

xi) Need to define modelling approach for block plans (are targets relative or absolute?).

xii) Thermal modelling discussed.

Action arising from the recap:

(a) CVC advised that full documentation for Water Quality Model is expected for release the end of March 2009. **CVC**

(b) Neal Grady to co-ordinate a meeting with Landowners, Philips, and CVC regarding the modelling approach for Block Plan preparation. **City**

(c) Hamid Hatami questioned the Team as to how existing and future water quality impacts would be assessed. Ron Scheckenberger described the multiple model approach (URF versus subcatchment-scale) and the various objective functions associated with each. Bob Walker added that the CVC modelling approach was based on the Toronto Wet Weather Flow Study and that the model is a useful tool for comparing scenarios, but not necessarily for absolute values.

3. Overview of Numeric Targets Related to Hydrology and Hydrogeology

Ron Scheckenberger discussed the current Target Setting Worksheet (October 28, 2008). Ron acknowledged the receipt of comments from the Landowners (ref. January 29, 2009) and also CVC (February 19, 2009), both received since the compilation of the October 28, 2008 version. Landowner's comments to be distributed to CVC. **Stonybrook** Ron highlighted various targets, which are associated with the numeric modelling as follows: 4c New #1; 5a 8 b, c and d; 9a, 9d to j. Philips was requested to review the numeric targets and advise if there are any others which would relate specifically to the numerical modelling cited. **PEL** [Note: Post-meeting Philips confirmed the above

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targets plus 4a, 4b, 5b, 7a, 8a, 8d, 9b, 9c, 9k relate to numeric modelling.]

Christine Zimmer requested a copy of the comments from the Landowners' group. Stonybrook to forward a copy to CVC. **Stonybrook**

4. **Discussion of LID BMP Modelling Principles and Approach**

(i) Ron Scheckenberger outlined the need to develop a consensus on LID BMP modelling principles for both the Subcatchment and URF-scale models, noting how these would need to be integrated with the groundwater modelling approach.

(ii) Aaron Farrell described the currently proposed approach to LID BMP modelling, which has intentionally been established to be less specific to the respective BMP's and rather more focussed on the function of the respective BMP's in the field (for instance to varying degrees the source control BMP's would infiltrate water, store/filter water, and convey water).

(iii) Aaron described the process of the URF model, which is based upon modelling individual 1 ha land uses. Aaron noted that the LID BMP modelling concept would assume the capture of a defined storage target within a storage unit, which would then have an infiltration component, a sub-drain component and an overflow component. The infiltration capacity of the existing soils was discussed as generally being in the neighbourhood of 0.5 mm/hr, with a top end of approximately 4.5 mm/hr. toward the south end of the Huttonville Subwatershed. Bob Walker advised that these figures tend to be quite close to those recently developed for the watershed for these types of soils (0.25 mm/hr.). Aaron further described that the storage unit would basically be a RCHRES element with multiple outlets to develop the storage and infiltration relationship for each 1 ha unit.

(iv) Bill Blackport described the interface between the surface water and groundwater model, specifically the recharge component. Bill indicated that the Finite Element Model would specifically be modelling the change in recharge and that these values would come explicitly from the surface water model. It was stated that the comparison between the groundwater and surface water model was very tight, in the neighbourhood of 40-70 mm of recharge. Bill added that the groundwater assessment will include a sensitivity analysis, associated with various parametric values.

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Christine Zimmer questioned whether the influence of reduced recharge and urbanization on wetlands would be determined. Bill identified that the water levels would be derived from the model, however at its scale, it is unlikely to produce a definitive result; notwithstanding this information could be made more resolute at the Block Plan stage. Joanne Thompson agreed and also noted that the information being developed at this scale of study will be useful. As well, she cited that the wetland features in the area are not groundwater fed but are predominantly surface water fed.

(v) Ron Scheckenberger discussed the thermal modelling approach and recent dialogue with CVC. He advised that, despite some concerns regarding base parametric values, as well as empirical mitigation relationships for BMP's (regarding the effectiveness to mitigate thermal impacts), Philips will apply the CVC Water Quality Model to conduct a thermal impact assessment for the Point of Department Plan. Bob Walker advised that there is additional information available based upon the refinement work being conducted in Subwatershed 19; he will forward to PEL for review. Jen Dougherty will set up a meeting with Philips and Bob Walker to review these model refinements in order that they can be incorporated appropriately into the North West Brampton assessment; in addition fisheries biologists will be requested to attend from CVC and Subwatershed Team. **EBNFLO/PEL** **CVC**

Ron Scheckenberger noted that, given that the greatest system stress generally relates to high temperatures, modelling beyond the June/ July/ August/ September period would not appear to be necessary. Bob Walker generally agreed also noting that, in some circumstances, very cold temperatures can be problematic, however this is unlikely in this setting.

Nancy Mather questioned whether or not the need to secure additional information regarding thermal modelling will cause a delay in the delivery of the thermal impact assessment for the Point of Departure plan. This was noted to be accurate, however the temperature impact assessment can be conducted after submission of the impact assessment and then incorporated into the second assessment of the plan.

Ron Scheckenberger provided an overview of the water quality modelling approach, indicating that loading rates by land use had been established as part of the Toronto Wet Weather Flow Study and verified as part of the Subwatershed Study. Ron referenced previous technical meetings regarding the application of this approach and consensus regarding the

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application of the loading rates to determine mass loadings as part of the Impact Assessment.

Jen Dougherty suggested that the water quality modelling approach remains to be determined and specifically mentioned that the removal efficiencies are subject to revision. Ron indicated that the process is incremental and that adjustments could be made after the first impact assessment.

5. Review of Preliminary Locations for LID BMP's on Point of Departure Plan

Ron Scheckenberger distributed a handout "Thoughts on Spatial Application of LID Measures in North West Brampton". Ron reviewed various variables including topography, groundwater levels, features, support soils, and bedrock. In general, Ron advised that these parameters tend to be quite uniform across North West Brampton and as a result there is no spatial preference as to the application of these measures.

On the basis of the uniformity of the physical features, Ron Scheckenberger suggested that the only measure to discern between LID application is proposed Future land use. As such, various storage targets were defined by Philips, along with an assumed loss of efficiency overtime. These were as follows:

- High density residential: 2mm (assume 50% loss)
- Medium Low density: 4mm (assume 50% loss)
- Schools/Parks: 6mm (assume 25% loss)
- District Commercial: 2 mm (assume 25% loss)
- Other Commercial: 2 mm (assume 25% loss)

Michael Won stated that the proposed LID definition was a good starting point in an effort to move the modelling process forward, but that the City would feel more comfortable with the following adjustments:

- High density residential: 2mm (assume 25% loss)
- Medium Low density residential: 4mm (assume 75% loss)
- Schools/Parks: 6mm (assume 25% loss)
- District Commercial: 2 mm (assume 25% loss)
- Other Commercial: 2 mm (assume 25% loss)

The foregoing figures were considered appropriate for evaluation. Nancy Mather requested a review prior to application by Philips. **Stonybrook**

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Comments arising included:

i) Bob Walker asked why a fixed total loss needed to be assumed and why could not a range be assumed given that LID technologies will advance overtime.

ii) Christine Zimmer stated that CVC has been considering a minimum of 5mm infiltration in tight soils, however, in an effort to move the modelling process forward, CVC staff stated that they would agree with the City's suggested changes as a first draft.

iii) Frank Mazzotta indicated potential concern regarding the level of redundancy, particularly on private landowner's property and in particular for flood control. Ron Scheckenberger described the possible mitigation measure for flood control impacts citing that channels tend to be sized for other more conservative measures besides Regional flood conveyance. As well, he noted that on-line Regional flood control being assessed as part of this evaluation.

iv) Nancy Mather described an Enhanced Natural Heritage System and Restoration Vignette. Nancy requested that, as part of the Philips assessment, the land use parameters for these corridors be reflective of the proposed level of restoration. Dave Leighton advised of the opportunity of introducing dry collection swales into the corridors as a form of LID BMP to drain discrete banks of homes bordering on the Natural Heritage Systems. Nancy Mather advised that two other vignette plans will be forwarded for consideration by the Team. **PEL** **Landowners**

Meeting Minutes prepared by,

PHILIPS ENGINEERING LTD.

Per: Ronald B. Scheckenberger, M. Eng., P. Eng.

RBS/ll
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c.c. All present

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