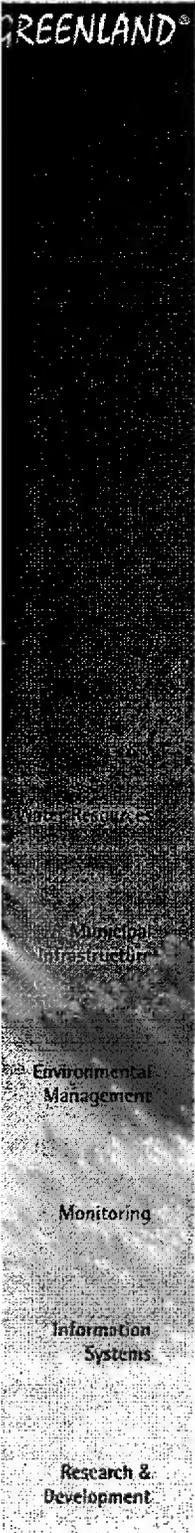
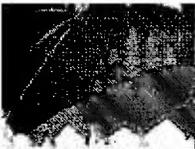


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Attachment 11

June 5 2009 letter re Chicago Design Storm



5 June 2009

File No. 08-G-2120

City of Ottawa
Infrastructure Services & Community Sustainability
Community and Sustainability Services Branch
110 Laurier Avenue West
Ottawa, Ontario, K1P 1J1

WITHOUT PREJUDICE

Attention: Ms. Carol Christensen
Manager Environmental Sustainability

RE: Addendum Information
Reply to Additional MTO Comments
Third Party Review – Carp River Restoration Project

Dear Ms Christensen:

This letter presents our findings of an additional analysis that was commenced in May 2009 and specifically in response to other comments received from MTO during the Third Party Review. There were four (4) comments received from MTO with two (2) of them addressed in May 25, 2009 correspondence and the others partly addressed. This letter focuses on our analysis of additional design storms, while also reiterating some pertinent information provided in our previous correspondence. We are pleased to provide the information requested.

Final MTO Comments

MTO staff issues had a particular focus on the Hwy 417 crossing on the Carp River. Two (2) additional issues were raised based on public comments received about our Draft Final Report.

Specifically the issues were as follows:

Additional Issues

1. A review of the concern being raised by the public over the use of the 24 hr Chicago storm distribution being recommended for the upper catchment to the Glen Cairn SWM facility but not being applicable for the overall Carp River study area.
2. After a technical discussion of the potential time of concentration to the Hwy 417, MTO also requested an investigation of the 6 hr Chicago storm distribution.

Comparison with 24 hr Chicago Storm Distribution

MTO raised comments about the use of the 24 hr Chicago storm distribution. This distribution was identified from a separate investigation as the storm generating the worst conditions to be applied to the urban catchment for sizing culverts upstream of the Glen Cairn SWM facility (Refer to Performance Review of Upper Carp River – Glen Cairn Document – CCL, Mar 2003).

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The consultant's recommendations for the Glen Cairn drainage area are presently under litigation, so it is not the intention of the subject Third Party Review to comment on the use of this other design storm distribution for use within the Glen Cairn community. This letter and all details are presented **without prejudice** to the proceedings concerning the Glen Cairn community.

Several key points were discussed with senior hydrologists with MTO and the City, namely:

1. CCL recommends that the 24 hr Chicago storm distribution should not be applied downstream of their study area on the main Carp River (p 16) with the increasing rural nature of the watercourse further downstream.
2. The 24 hr Chicago storm distribution applied in the Glen Cairn study had a 15 min time step which could not successfully be applied to the Extran routine in the DDSWMM model for the Kanata West development since the sewer segment lengths were not of sufficient length for this time step. It would require sewer segments at least three times as long for the model to work.
3. The model of record extends to the Village of Carp with 79% of the watershed containing rural land uses. Upstream of the Hwy 417 there was still 39% rural land use.
4. The 24 hr Chicago storm distribution is not mentioned in the City guidelines. All hydrologists discussed its application on small urban catchments. It could potentially be used to size storage areas where volume was to be determined. For larger watersheds, the models that utilize the unit hydrograph theory to generate runoff require that the length of rainfall duration not exceed the lag time to the time to peak. For small urban catchments with short times of concentration, the City of Ottawa criteria that the storm duration be greater than twice the time of concentration, is applicable.
5. The 24 hr Chicago storm distribution with a 5 min time step had to be run for comparison with the storm distributions previously run for the model of record. The City Guidelines recommend against using this time step since it gives overly conservative results. The worst 1 hour in the 24 hour Chicago storm distribution produces 56 mm of rainfall. This volume of rainfall is significantly higher than the statistical 100 year 1 hour rainfall volume produced by the Ottawa IDF curves (51 mm).
6. The Chicago storm distribution produces the same peak rainfall intensity regardless of length of storm for the same time step. The CCL report shows little difference in peak flows generated for the various durations of Chicago storm distributions.
7. The 12 hr SCS storm distribution is recommended by City Guidelines for rural catchments. The rural catchments were investigated and the 12 hr SCS storm distribution created slightly greater peak flows than the 24 hr Chicago distribution.
8. The MTO determined that the time of concentration to the Hwy 417 bridge may be in the order of 4 to 6 hours and requested that the 6 hour Chicago storm distribution be investigated.
9. The nature of the Carp River corridor tends to dampen any peak flows generated and the impacts of various storm distributions appear to be dampened in the corridor as borne out in the comparisons that have been made.

Comparison of Storm Distributions

Although several other storm distributions were previously evaluated during the Third Party Review, and other consultants had also previously arrived at the use of the 12 hour SCS storm distribution,

the model of record was run for the storm distributions requested by the public and MTO and documented in the following tables. This analysis required running up to four (4) separate software packages depending on the land use condition being simulated.

Existing Conditions

The existing conditions models of record were run with the storm distributions, previously to respond to the public and now to formally respond to the MTO concerns. **Table 1** below summarizes the water levels generated at key stations throughout the study reach. The existing conditions CH2MHill XPSWMM model was run with the new storms. Hydrographs were imported into the existing conditions HEC-RAS model also prepared by CH2MHill. The comparison is being completed with a 24 hr and 6 hr Chicago distribution at a 5 minute time step since the 12 hr SCS distribution was originally run with a 5 minute time step.

Table 1: Carp River - 100 Year Storm Existing Condition Water Elevation Comparison

Location	HEC-RAS Xsection	Peak Water Level (m) – Incl. Elevation Difference Relative to the 100yr 12hr SCS						
		100yr 12hr SCS		100yr 24hr Chicago		100yr 6hr Chicago		
		Elevation (m)	Difference (m)	Elevation (m)	Difference (m)	Elevation (m)	Difference (m)	
Glen Cairn		44953	94.92	N/A	94.95	0.03	94.80	-0.12
Hazeldean Road	u/s	44325	94.87	N/A	94.91	0.04	94.74	-0.13
	d/s	44302	94.53	N/A	94.54	0.01	94.44	-0.09
Maple Grove Road	u/s	43375	94.44	N/A	94.45	0.01	94.35	-0.09
	d/s	43364	94.43	N/A	94.44	0.01	94.35	-0.08
Palladium Drive	u/s	42890	94.36	N/A	94.37	0.01	94.28	-0.08
	d/s	42855	94.33	N/A	94.34	0.01	94.26	-0.07
Hwy 417	u/s	42182	94.18	N/A	94.19	0.01	94.11	-0.07
	d/s	42097	94.00	N/A	94.00	0.00	93.95	-0.05
Richardson Side Road	u/s	40071	93.45	N/A	93.49	0.04	93.27	-0.18
	d/s	40050	93.44	N/A	93.49	0.05	93.27	-0.17
Huntmar	u/s	37894	93.36	N/A	93.43	0.07	93.11	-0.25
	d/s	37869	92.97	N/A	93.00	0.03	92.83	-0.14
March Road	u/s	33201	92.63	N/A	92.65	0.02	92.58	-0.05
	d/s	33181.1	92.60	N/A	92.62	0.02	92.57	-0.03
Carp Road	u/s	31662	92.53	N/A	92.54	0.01	92.52	-0.01
	d/s	31642.1	92.52	N/A	92.53	0.01	92.51	-0.01

For existing conditions, the 6 hr Chicago distribution consistently produces lower water elevations. The 24 hr Chicago distribution (with 5 min time step – more conservative than 15 min time step used in Glen Cairn) produces similar results to the 12 hr SCS distribution for most of the urban reach. There is a negligible elevation difference in water levels upstream of Hazeldean (3 to 4 cm). There is

virtually no change in water elevations between Hazeldean Road and Hwy 417. Downstream of the Hwy 417 structures, there are higher elevations between Richardson Side Road and Huntmar Rd. Downstream of Huntmar Rd, the water levels are comparable.

Future Conditions

Based on the results of the existing conditions models, our preliminary review focused on individual catchment responses and determined that there were no significant differences in response on most previously urbanized catchments. Therefore, a full series of runs for each software model was deemed not necessary specifically when the majority of the study reach is to remain in rural conditions. However, based on MTO's recent request, we completed the model runs to confirm that the other storm durations do address what was discussed with MTO.

The process to examine the two additional 100yr Chicago storm distributions for the future conditions is a complex, analytical procedure involving the various software models used during the Third Party Review. These steps were followed for all seven (7) drainage catchments that will serve the seven (7) proposed SWM facilities:

1. Run DDSWMM input file with new design storm. It determines flows captured to minor system at each node and separates the major system flows.
2. Identify major system flows that go directly to the SWM facility. Extract hydrographs that comprise major system to SWM facility and compile in Excel. Read compiled hydrograph into Stantec XPSWMM sewer model at SWM facility.
3. Identify major system hydrographs in DDSWMM not going to SWM facility. Extract hydrographs to Excel and compile. Read hydrograph into CH2MHill XPSWMM model for tributary contributions or directly into the Carp River. (NOTE: The CH2MHill XPSWMM model does not have the Kanata West catchments only hydrographs created from either the DDSWMM or the XPSWMM sewer model created by Stantec).
4. Read DDSWMM Extran interface file and import hydrographs for flows entering minor system for each node into Excel. Read compiled hydrographs from Excel to appropriate node in the Stantec XPSWMM sewer model.
5. Run Stantec XPSWMM sewer model and determine flows entering SWM facility. Identify flows passing through facility and bypassing facility. Read these hydrographs into the CH2MHill XPSWMM model for the tributaries.

Repeat process for all seven (7) SWM facility models.

1. Run CH2MHill XPSWMM model with new storm distribution for external areas to Kanata West. Import the appropriate hydrographs from the Kanata West models. Run model with all changes. Import hydrographs at key locations in XPSWMM model into appropriate locations in HEC-RAS model.
2. Run QUALHYMO with new design storm distributions. Import appropriate hydrographs downstream of Richardson Side Road in HEC-RAS model
3. Run HEC-RAS model.

The results for the additional 24 hour and 6 hour Chicago storm distributions are recorded in **Table 2** below. As an aside, it takes several hours to run each design storm through the series of software models used for the Carp River Restoration Project and examined as part-of the Third Party Review.

Table 2: Carp River - 100 Year Storm Future Condition Water Elevation Comparison								
Location		HEC-RAS Xsection	Peak Water Level (m) – Incl. Elevation Difference Relative to the 100yr 12hr SCS					
			100yr 12hr SCS		100yr 24hr Chicago		100yr 6hr Chicago	
Glen Cairn		44953	94.95	N/A	94.99	0.04	94.89	-0.06
Hazeldean Road	u/s	44325	94.92	N/A	94.95	0.03	94.86	-0.06
	d/s	44302	94.71	N/A	94.74	0.03	94.64	-0.07
Maple Grove Road	u/s	43375	94.69	N/A	94.72	0.03	94.62	-0.07
	d/s	43364	94.65	N/A	94.68	0.03	94.58	-0.07
Palladium Drive	u/s	42889	94.62	N/A	94.66	0.04	94.55	-0.07
	d/s	42855	94.33	N/A	94.36	0.03	94.27	-0.06
Hwy 417	u/s	42182	94.12	N/A	94.15	0.03	94.07	-0.05
	d/s	42097	93.74	N/A	93.75	0.01	93.69	-0.05
Future Transitway	u/s	41743	93.77	N/A	93.79	0.02	93.73	-0.04
	d/s	41725.5	93.75	N/A	93.77	0.02	93.71	-0.04
Future Campeau Crossing	u/s	41608	93.73	N/A	93.74	0.01	93.67	-0.06
	d/s	41572	93.67	N/A	93.68	0.01	93.60	-0.07
Richardson Side Road	u/s	40071.5	93.52	N/A	93.57	0.05	93.31	-0.21
	d/s	40050	93.52	N/A	93.57	0.05	93.33	-0.19
Huntmar	u/s	37894	93.47	N/A	93.53	0.06	93.20	-0.27
	d/s	37869.5	92.97	N/A	93.00	0.03	92.87	-0.10
March Road	u/s	33201	92.66	N/A	92.68	0.02	92.61	-0.05
	d/s	33181	92.64	N/A	92.66	0.02	92.60	-0.04
Carp Road	u/s	31662	92.53	N/A	92.54	0.01	92.52	-0.01
	d/s	31642	92.53	N/A	92.53	0	92.52	-0.01

The 24 hour Chicago storm distribution shows negligible higher water levels than with the 12 hour SCS storm distribution throughout the reach similarly to the existing conditions. The differences are

within the tolerances of the models. The 6 hour storm has consistently (yet more substantial) lower water levels. Even though the 24 hour Chicago storm distribution contains a larger rainfall volume than the 12 hour SCS storm distribution (106.7 to 96 mm), the results of the storms are comparable.

Time Step Comparison

We also investigated the sensitivity of a 5 min time step that was used in the "models of record" and compared the results with the 15 min time step for the 24 hour Chicago distribution. The 15 min time step was employed in the Glen Cairn community study, whereas the 5 min time step needed to be employed to route flows through the storm sewer network in the proposed Kanata West development.

A comparison of hydrographs results was done for the drainage areas to the two (2) larger facilities in Kanata West, Pond 4 and Pond 5. The difference between the 24 hour Chicago distribution using either a 5 min or 15 min time step is as follows:

Pond 4	15 min	22.76 cms.
	5 min	23.16 cms
Pond 5	15 min	11.64 cms
	5 min	12.36 cms

As a result of this analysis, the 100 year 24 hr Chicago distribution with the 15 minute time step would not exceed the 12 hour SCS storm distribution that was confirmed from the Third Party Review. The overly conservative 5 min time step version of the 100 year 24 hr Chicago distribution, that had to be applied solely to get the pipe routing model to work, gives marginal water level increases that are within the tolerances of the software. The comparisons in Tables 1 and 2 have been completed with the more conservative 5 min time step results.

The City of Ottawa guidelines recommend against the use of the 5 minute time step with the Chicago distribution for this type of application in small urban catchments since it has the tendency to give very conservative results. Although, the 100 year 24 hour Chicago storm distribution has not been recommended previously for this study reach, the results of the subject analysis show that it produces negligible water level increases when compared against the 100 year 12 hour SCS storm distribution.

Summary

A review of existing and future water levels at the Hwy 417 structures shows that regardless of the storm distribution used, the water levels will be lowered with the proposed Carp River corridor improvements. It is anticipated with the subsequent changes to the corridor (widening requested by City staff and approved by Council) that these water levels will in fact go down further.

MTO has not requested the raw data that was produced for the subject analysis and is therefore prepared to accept the findings outlined in this letter. However, we understand that there have been other requests for the raw modeling data. Please note, that there are several input files for the various

proprietary modeling software that require licensing arrangements for each requester, as well as spreadsheet programs developed exclusively by Greenland International Consulting Ltd. to link road and sewer flows to the appropriate places in other software. If this information is released, it would have to be in a controlled environment, where the process of building the model that creates the flood levels in the Carp River could be walked through and clarified on a case by case basis. Also, suitable licensing and any other necessary arrangements must be agreed to in advance by each requester and owners of the modeling software and/or spreadsheet programs.

We trust this information will assist with your MTO discussions.

Should you wish any further clarification, please do not hesitate to contact me.

Yours truly,

GREENLAND INTERNATIONAL CONSULTING LTD.



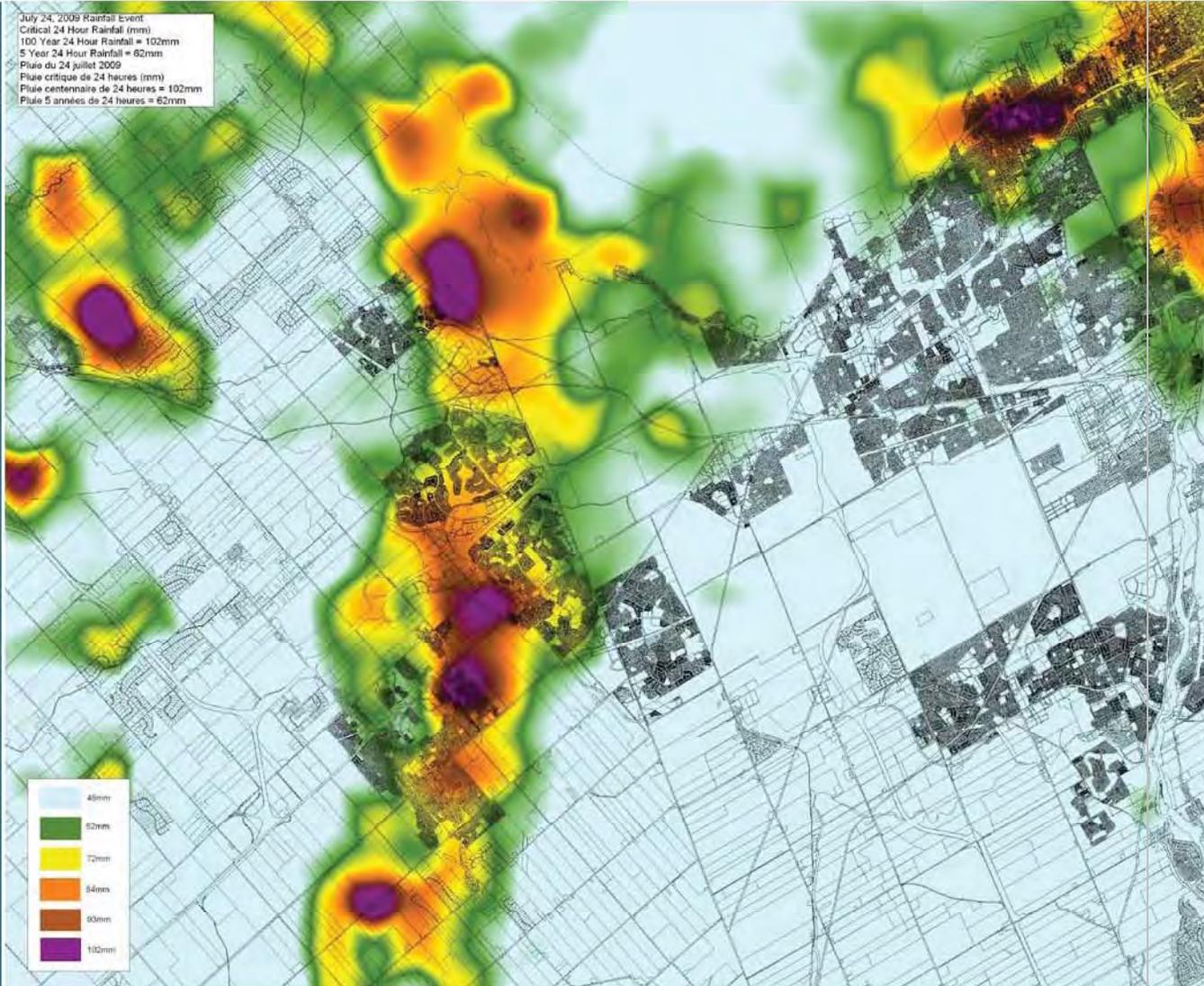
Don Moss, M.Eng., P.Eng.
Associate

xc: R. Mark Palmer P.Eng. President – Greenland International Consulting Ltd.

Attachment 12

Jan 2010 Flooding Investigation

Phases 1 and 2 - Summary Report (final)



WEST-END FLOODING INVESTIGATION 24 JULY 2009 RAINSTORM EVENT

PHASES 1 AND 2 – SUMMARY REPORT

JANUARY 2010

Summary Report

Background

On July 24, 2009, parts of the City of Ottawa experienced a significant rainstorm (over 100 mm of rain in a 24-hour period in some areas) resulting in nearly 1,500 flooded basements, overflows at two sewage pumping stations, and seven culvert failures. These occurred primarily in the City's west end, mainly in Ward 4 - Kanata North (Beaverbrook), Ward 5 - West Carleton-March (Carp Village), Ward 6 - Stittsville, and Ward 23 - Kanata South (Katimavik and Glen Cairn). An investigation, led by the Infrastructure Services Department (ISD) and supported by several City departments, is underway to understand why flooding occurred, what can be done to reduce the risk of future occurrences, and to implement solutions.

Scope of Investigation

The investigation is being undertaken in five phases: Phase 1 - Background data collection; Phase 2 - Assessment and problem definition; Phase 3 - Identification and evaluation of alternative solutions; Phase 4 - Development and approval of action plan; and Phase 5 - Implementation of approved action plan.

The scope of the investigation includes all west end locations that experienced flooding. The focus is on affected areas where flooding resulted in damage to private properties or to City infrastructure. While heavy rainfall and flooding also occurred in other parts of the City, flooding in other areas appears to be isolated and dispersed. These isolated cases will be subject to a separate investigation on an individual basis.

This summary report provides a summary of the results of Phases 1 and 2 of the investigation. The main report provides more technical details. Phase 3 has been initiated and is ongoing. It is noted that this investigation is subject to a peer review and will be made available to the public. The only difference between the main technical reports submitted to the peer review and the version available to the public is references that could identify specific properties have been removed from the version available to the public. This does not change the findings available in both reports.

Public Input

Public input has been key to the investigation. A number of residents have submitted comments and photos that were very helpful in understanding what took place on July 24, 2009. In addition, how water entered basements is based on information provided by residents as part of the City's First Response when the event took place.

Public meetings were organized by affected Ward Councillors and held in the following west end locations:

- Stittsville and District Community Centre, July 30, 2009 (evening)
- Kanata Recreation Complex, September 12, 2009 (all day with three sessions)

- Earl of March School, October 1, 2009 (evening)

A presentation was also made to Council on September 2, 2009. The presentation provided an overview of the extent of flooding, general causes of flooding and a work plan focusing on finding solutions that will reduce the risk of future flooding occurrences.

Opportunities for public input will be available throughout the various phases of the investigation process. For example, the Glen Cairn Flooding Investigation Study has been initiated and is following the Class Environmental Assessment process. A Community Committee has been established for Kanata South and this group has provided beneficial input.

Design Standards

As with most built goods, standards evolve over time. This also applies to design standards for municipal infrastructure. The area that has seen the greatest change is related to storm water management.

Pre 1960's

Sewers first constructed in Ottawa, over 100 years ago, were comprised of combined pipes that conveyed storms and sanitary flows directly to the river. In the late 1950's and early 1960's, flows from those combined sewers were intercepted and a high percentage was redirected to the wastewater treatment plant. In addition, in the 1950's the industry practice moved from building combined sewers to partially separated sewers; separate sanitary and storm pipes but with perimeter foundation drains connected to the sanitary sewer.

1960's to 1990's

In the early to mid 1960's the industry practice moved to fully separated sewers; perimeter foundation drains connected to storm sewers. Storm sewers were designed based on capturing frequent rainfall events but little to no provisions were made for large events. It is only in the mid 80's and 90's that consideration started to be given to incorporating into the overall community design plans overland drainage as part of the design of storm drainage systems to deal with larger/infrequent rainfall events. It is also in the 90's that new developments started to include stormwater ponds to store rain water during large rainfall events. These ponds later evolved to provide stormwater quality benefits to protect receiving streams.

Current Standards

Current urban storm drainage systems consist of two separate and distinct systems (also referred to as dual drainage): 1) the minor system and 2) the major system. The minor system consists of the underground storm sewer system that conveys flows from the more frequent, lower intensity rainstorms. The major system, which consists of the overland flow routes (street network, swales, watercourses, etc.), is designed to convey runoff from the less frequent, high intensity storm events that are in excess of the minor system design capacity. Dual drainage often features the use of inlet restrictors that limit inflow to the minor system. Flow to the minor system is restricted to the capacity of the storm sewer pipes. During events that exceed the capacity of the minor system, excess flow is conveyed overland or stored on site. Minor systems are therefore protected from surcharge during rare events and with proper major system drainage the risk of

basement flooding is minimized. The use of backwater valves can also provide a second level of protection during rare events.

Current City of Ottawa sewer design standards are based on current recognized industry practices and these have been applied on a city-wide basis since 2004. The majority of the west end areas affected by the July 24, 2009 event were built in the 1960's to 1980's, before implementation of dual drainage standards. Therefore, increasing the resiliency to large rainfall events in these communities requires working within the constraints of how these were built.

Key Findings (Basement Flooding)

The root cause of the basement flooding on July 24, 2009 is the rainfall exceeded what the sewer systems were designed to handle (note: this includes provisions for overland drainage as sewer pipes alone are not designed to handle these types of large rainfall events). Sewer cleaning has not been identified as a cause of flooding.

Several factors contributed to widespread occurrences of flooding and sewer backups in the City's west-end. The following is intended to highlight key findings. The extent to which these contributed to basement flooding is being analyzed in more detail as part of Phase 3 of the investigation.

Overtaxed storm sewers and overland drainage:

The July 24, 2009 rainfall event exceeded the design capacity of the storm drainage system. This led to water entering basements through window wells, improperly sealed backwater valves or cleanouts, and floor joint around foundations. Water in these basements evacuated through basement floor drains contributing high extraneous flows to the sanitary sewer system.

During Phase 3 of the investigation, measures to increase the ability of the existing drainage systems to handle large rainfall events will be analyzed. These included capacity of the existing storm sewers, installation of inlet control devices (ICDs), and improvements to overland drainage.

Failure of backwater valves:

Due to the significant rainfall, storm sewers were overtaxed causing water to backup in lateral connection and creating pressure on backwater valves (BWVs). Approximately 125 homes, mainly located in the Stittsville area, experienced failure of BWVs exacerbating extraneous flows to the sanitary sewer system. The investigation carried out to date indicates that BWVs were installed in the correct position but water entered basement through caps that did not provide a proper seal.

Phase 3 of the investigation is looking into BWV standards and opportunities to increase public awareness of what measures residents can take to confirm that BWV caps are closed properly.

High extraneous flows in sanitary sewers:

Sanitary sewers experienced extraneous flows significantly greater than what they were designed to handle leading to many occurrences of sewer backups in basements. These high extraneous

flows were caused by basements flooded by storm water (as discussed above), water entering through holes in maintenance covers that would have been submerged during the large rainfall event and through sump pumps discharging illegally to the sanitary system. High extraneous flows could also be from foundation drains or storm catch basins that are cross-connected. Fog testing is being undertaken in Glen Cairn, Katimavik and Beaverbrook to confirm if any of these are present that would require them to be redirected to the storm system.

During Phase 3 of the investigation, staff will examine the results of the fog testing, and analyze the capacity of the sanitary sewer system to identify potential flow restrictions and capacity upgrades to allow the sewer system to handle larger extraneous flows. They will also look at opportunities to increase public awareness on measures residents can take to reduce extraneous flow to the sanitary system, such as not discharging sump pumps into the sanitary sewer via connections to the laundry tub or floor drain, and the importance of not opening maintenance hole covers to drain water accumulated on the road surface. There is no confirmation that the latter has occurred, but photos of the July 24, 2009 event posted on Facebook shows an individual (in the south eastern part of Glen Cairn) trying to open a maintenance hole cover in the middle of the road and comments suggest that he was not successful. Opening maintenance hole covers under those conditions could cause extensive sewer backups in basements.

Overtaxed sewage pumping stations:

Under normal operating conditions, pumping stations have adequate capacity to handle sewage flows. The conditions experienced on July 24, 2009 resulted in higher than usual levels of extraneous flows in the sanitary sewers causing most of the pumping stations to operate at or above their design capacity. Overflows occurred at two pumping station locations: Fringewood and Acres Road. Both occurrences were reported to the Ministry of the Environment. The high operating levels at some of the stations caused water levels to rise in major trunk sewers further exacerbating sanitary sewer backups. This was particularly the case at the Hazeldean pumping station causing flows to backup in the Sittsville and Glamorgan collectors.

Phase 3 of the investigation will look into the inlet and overflow performances at the Hazeldean pumping station and opportunities for improvements as warranted. This is being coordinated with other operational upgrades and improvements. Further review is also required at the Acres Road pumping station to see what improvements are required to reduce the risk of future overflows occurring the way they took place on July 24, 2009.

Overwhelmed drainage along Monahan Drain at Terry Fox Drive:

The TransCanada Trail (TCT), that intersects Terry Fox Drive, is the watershed boundary between the Carp and Monahan drainage systems. The area to the north of the TCT drains towards the Carp River and the area to the south drains towards the Monahan drain and on to the Jock River.

There is a culvert where the Monahan Drain crosses Terry Fox Drive. This culvert is designed to convey flow from a relatively small area. During the July 24, 2009 rainfall event, a large pool of water accumulated on the west side of Terry Fox Drive. This issue is still subject to more detailed investigation, but it appears the significant rainfall overwhelmed the Monahan Municipal Drain system and some flows were directed north towards the TCT instead of

outletting to the south as intended under normal conditions. As noted, the TCT is the dividing boundary between the Carp and the Monahan systems, but there is a culvert located just east of the Hazeldean pumping station. This culvert is intended to drain rear yards from homes along Rothesay and the eastern portion of Glamorgan to the Monahan Drain. This culvert permitted flows from the Monahan Drain to reverse and move northward into the rear yards of the homes along Glamorgan and Castleglen and could have contributed flows to the Glen Cairn pond.

Phase 3 of the investigation is looking into analyzing the Monahan Drain system to assess its performance during the July 24, 2009 storm event and identify measures to reduce the risk of water flowing north towards the TCT.

High water level in Glen Cairn Stormwater Pond and Carp River:

Storm water in the Glen Cairn and Bridlewood North communities flows through the Glen Cairn Stormwater Pond, located on the west side of Terry Fox, before outletting into the Carp River. The pond provides both water quality and quantity control benefits.

The reach of the Carp River that flows through the Glen Cairn community also flows through the pond. During large rainfall events, water accumulates in the pond, and this affects the water level in the reach of the Carp River located in the Glen Cairn community. This section of the Carp River was subject of previous channel improvements following the 2002 event. Based on the available data, there are no indications to suggest that the Carp River overtopped its banks. The channel improvements were effective in reducing the impact of surface flooding in the community.

Since the pond and the Carp River serve as the outlet for all storm sewers, the capacity of the storm sewers are impacted by the outlet levels during large/infrequent rainfall events. This would have exacerbated the overtaxing of the storm sewers. As a result, sump pumps are being recommended as part of the Residential Protective Plumbing Program for homes in Glen Cairn located in the area influenced by the levels in the Glen Cairn pond and Carp River.

Phase 3 of the investigation is looking into analyzing the impact of the water levels in the Glen Cairn pond and Carp River on the outlet conditions for the storm sewer systems. This is being undertaken as part of the ongoing Glen Cairn Flooding Investigation Study.

High water level in Cattail Creek at Katimavik Road:

On July 24, 2009, high water levels were reported in Cattail Creek at Katimavik Drive. Debris had partially clogged the grate of the culvert crossing Katimavik Road, causing water to back into the yards of properties along Peary Way and entering basements through window wells and joints around basement floors resulting in high extraneous flows causing sewer backups in other homes in the immediate area. The partial clogging of the grate is expected to have occurred as a result of debris (i.e. branches, leaves) along the creek being transported. The grate has since been removed until the situation is reviewed in more detail.

Phase 3 of the investigation is looking into analyzing the culvert and drainage systems in more detail to ensure there is sufficient capacity to provide an appropriate level of protection. The design for the grate at this location is also being reviewed.

Other Findings (Culvert Failures)

The significant rainfall also contributed to failure of seven road culverts (all less than 3 m in size). This does not include the culvert crossing Katimavik Road discussed above. None of these seven culverts contributed to basement flooding and did not result in injuries or damage to private properties.

The extent of failure varied by location, but extension joint failures on corrugated steel pipe culverts caused most failures and invert rust-out contributed to others. Corrective action has been taken for all culverts. Options are also being investigated to reduce the risk of future failures resulting from significant rainfall events.

Summary of Findings by Clusters

Clusters are defined as groupings of homes in the same general area that experienced basement flooding. Clusters are identified by community name or by a major street in the affected area. The limits of the clusters are shown in Figure 1. A summary of findings by clusters is provided in Table 1.

As noted in Table 1, several factors contributed to widespread occurrences of flooding and sewer backups. The extent to which these may have contributed to basement flooding is being analyzed in more detail as part of Phase 3 of the investigation.

Next Steps

The next steps are focussed on completing the review of alternatives and the selection of solutions that will assist in reducing the risk of future basement flooding in the affected areas.

As noted in the key findings, the focus will be to:

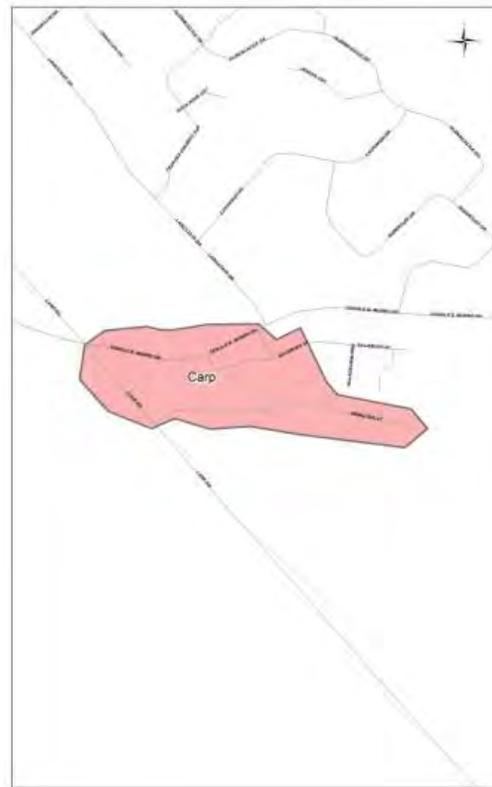
- Reduce storm water inflow into sanitary sewer;
- Review and improve overland drainage, where required;
- Install inlet control devices (ICDs) on storm sewer;
- Increase awareness of backflow valve and sump pump maintenance requirements; and
- Promote Residential Protective Plumbing Program.

Given the difference in scope for the various areas, some will be identified and implemented sooner than others. To ensure that delays don't occur in the implementation, funding is being identified as part of the 2010 Draft Rate Supported Capital Budget. A memo to Council will be issued in January 2010 providing an update on the status of the investigation and an outline of the funding requirements being included in the 2010 Draft Rate Supported Capital Budget to allow implementation of solutions to begin in 2010.

Figure 1 – Limits of Flooding Clusters



Ward 4 – Kanata North



Ward 5 – West Carleton-March



Ward 6 – Stittsville - Kanata-West



Ward 23 – Kanata South

Table 1 – Summary of Findings by Clusters

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Ward 4 – Kanata North			
Leacock (constructed in 1964)	32	Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. Sewers were not designed, nor are they intended to handle the extraneous flows experienced during the July 24, 2009 rainfall event.	Phase 3 is underway and will be analyzing in more details the hydraulic capacity of the sanitary and storm sewer systems to identify improvements. Fog testing is also being conducted to identify sources of extraneous flows in the sanitary sewer system.
Penfield (constructed in 1969)	7	Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. The sanitary sewer outlet for this area is the March Ridge Trunk sewer. High extraneous flows caused the Acres Road pumping station to overflow and it is suspected that March Ridge Trunk was surcharged. Basements that were impacted are the lowest in the area and would be the first to be impacted.	Phase 3 is underway and will be analyzing the trunk sewers, up to and including the Acres Road pumping station, to determine if this was in fact the cause of flooding. The analysis will also extend to the local system, as necessary, to identify if there are local constraints that could have aggravated the sewer backups.
Ward 5 – West Carleton-March			
Carp Village – Rivington St. (constructed in 2001)	11	Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system from water entering through maintenance hole covers or sump pumps directed to the sanitary sewer. Only the lowest basements on the north side experienced sewer backups.	Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices (ICDs) and improvements to overland drainage.

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Ward 6 – Stittsville-Kanata-West			
Old Stittsville (constructed in 1979)	29	<p>Based on information reported, the source of basement flooding appears to be equally divided between storm water entering through window wells and sump pits, and sanitary sewer backups. In areas with no storm sewers, water entered through sump pits and foundations. Design reports for this cluster noted groundwater to be high, which could have further aggravated the situation. It is not uncommon for residents to connect sump pumps to the sanitary system when there is an inadequate outlet or drainage outside of the house. This can aggravate already serious extraneous flow problems in the sanitary sewer system.</p> <p>Storm drainage infrastructure was constructed in the late 1970s. At that time, storm drainage systems were not designed to handle large-infrequent rainfall events.</p>	<p>Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>
West Wood (constructed in 2004)	102	<p>Based on information reported, most of the West Wood cluster flooded when the storm sewer system surcharged and entered basements through failed backwater valves (BWVs). Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system. This led to local sanitary sewer system surcharges that caused water to enter homes through floor drains. The lowest basements were flooded due to excess flow in the sanitary sewer system.</p>	<p>Phase 3 is underway and will be reviewing overland flow routes and sizing of ICDs to reduce the risk of future flooding occurrences.</p> <p>Given the high incidence of failed BWVs, a review has been initiated and should be available towards the end of Q1 of 2010.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
West Wind (constructed in 1984-2004)	54	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs and through sump pits. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system. This led to local sanitary sewer system surcharges that caused water to enter homes through floor drains. The lowest basements were flooded due to excess flow in the sanitary sewer system.	Phase 3 is underway and will be reviewing overland flow routes and sizing of ICDs to reduce the risk of future flooding occurrences. Given the high incidence of failed backwater valves, a review has been initiated and should be available towards the end of Q1 of 2010.
Jackson Trails (constructed in 2005-2007)	11	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs and through sump pits. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system. This led to local sanitary sewer system surcharges that caused water to enter homes through floor drains. The lowest basements were flooded due to excess flow in the sanitary sewer system.	Jackson Trails is a new development under construction. It was designed to current sewer design standards, but it appears that a number of ICDs had yet to be installed. Direction has been given to proceed immediately with the installation of the missing ICDs. This has also generated a motion from Council for future projects that a confirmation by a Professional Engineer be provided confirming that ICDs have been installed before the system being put into service.
Granite Ridge (constructed in 2000-2006)	42	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs, cleanouts and foundation cracks. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system. This led to local sanitary sewer system surcharges that caused water to enter homes through floor drains. The lowest basements were flooded due to excess flow in the sanitary sewer system.	Phase 3 is underway and will be reviewing overland flow routes and sizing of ICDs to reduce the risk of future flooding occurrences. Given the high incidence of failed backwater valves, a review has been initiated and should be available towards the end of Q1 of 2010.

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Eileen (constructed in 1992)	9	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system.	<p>Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p> <p>Given the high incidence of failed backwater valves, a review has been initiated and should be available towards the end of Q1 of 2010.</p>
Amberwood (constructed in 1984)	52	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs, cleanouts, window wells and joints around basement floors. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system. This led to local sanitary sewer system surcharges that caused water to enter homes through floor drains. The lowest basements were flooded due to excess flow in the sanitary sewer system.	<p>Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p> <p>Given the high incidence of failed backwater valves, a review has been initiated and should be available towards the end of Q1 of 2010.</p>
Wyldeewood (constructed in 1983)	13	Based on information reported, most homes flooded when the storm sewer system surcharged and entered basements through failed BWVs, cleanouts, window wells and joints around basement floors. Water exited from basements through floor drains into the sanitary sewer, which sent a significant amount of extraneous flow into the system.	Phase 3 is underway and will be reviewing overland flow routes and sizing of ICDs to reduce the risk of future flooding occurrences.

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Ward 23 – Kanata South			
Naismith (constructed in 1978)	16	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. Some properties also experienced flooding through backwater valves, window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p>	<p>Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>
Vanstone (constructed in 1978)	39	<p>Based on information reported, the source of basement flooding appears to be equally divided between storm water entering through window wells and sump pits, and sanitary sewer backups.</p> <p>This area is predominantly serviced by open ditches. There have been several infills, which may have impacted floodings through the elimination of stormwater outlets and conveyance capacity. Homes in this area have sump pits and pumps that provide foundation drainage. Field findings highlighted several eaves trough downspouts directed into the ground. During large rainfall events this could introduce more water than the sump pumps are able to handle resulting in basement flooding. Stormwater from these flooded basements introduced significant extraneous flow into the sanitary sewer system. It is also suspected that some homes have their sump pump outletting into the sanitary sewer (i.e. outletting into the laundry tub). The sources of extraneous flows in the sanitary sewer system would have caused other homes to experience sewer backups.</p>	<p>Phase 3 is underway and will be analyzing in more details the hydraulic capacity of both sanitary and storm drainage systems, including the impact of infilled ditches. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. Communication will also take place with residents of homes serviced by sump pumps and/or with downspouts outletting along the foundation to reduce potential extraneous sources into the sanitary sewer system.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Peary (constructed in 1975)	14	<p>Based on information reported, the source of basement flooding appears to be equally divided between storm water entering through window wells and joints around basement floors, and sanitary sewer backups. On July 24, 2009, high water levels were reported in Cattail Creek at Katimavik Drive. Debris had clogged the grate of the culvert crossing Katimavik Road, causing water to back into the yards of properties along Peary Way and entering basements through window wells and joints around basement floors resulting in high extraneous flows causing sewer backups in other homes in the immediate area. The partial clogging of the grate is expected to have occurred as a result of broken tree branches and debris along the creek being transported.</p>	<p>The culvert grate has been removed to minimize the risk of future blockages. A culvert capacity analysis will be completed to ensure the culvert has sufficient capacity to provide the appropriate level of protection against flooding.</p>
Glamorgan (constructed in 1973-1974)	392	<p>This area was the most severely affected by the July 24, 2009 rainfall. Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p> <p>There are a number of factors that appear to have contributed to flooding and sewer backups in this area.</p> <ul style="list-style-type: none"> • Due to the excessive extraneous flows, the Hazeldean pumping station operated beyond its rated capacity and the high water level at the station caused flows to backup in the Sittsville and 	<p>Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process.</p> <p>This study will be analyzing the capacity of the existing storm sewers and considering the installation of ICDs and improvements to overland drainage as measures to increase the resiliency of the existing drainage systems to handle large rainfall events. The analysis will consider in greater detail the impact of the water levels in the Glen Cairn pond and Carp River on the outlet conditions for the storm sewer system as this will affect the design of the ICDs and provisions for overland drainage.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Glamorgan (continued)		<p>Glamorgan collectors. This would have exacerbated the sewer backups in the Glamorgan area.</p> <ul style="list-style-type: none"> • The storm sewers for the Glamorgan area outlet in the Glen Cairn pond and the high water level in the pond resulting from the July 24, 2009 rainfall would have impacted the capacity of the storm sewer system. • The perimeter foundation drains for all homes in this area were constructed without the protection of a backwater valve. Without inlet restrictions (ICDs), the storm sewers will impact the foundation drainage systems that could cause basement flooding. • The TransCanada Trail (TCT) is the watershed boundary between the Carp and Monahan drainage systems. The area to the north of the TCT drains towards the Carp River and the area to the south drains towards the Monahan Drain and on to the Jock River. Due to the significant rainfall, flows from the Monahan Municipal Drain system were directed towards the TCT instead of outleting to the south as intended. A culvert located just east of the Hazeldean pumping station is intended to drain rear yards from homes along Rothesay and the eastern portion of Glamorgan to the Monahan Drain. This culvert permitted flows from the Monahan Drain to reverse and move northward into the rearyards of the homes along Glamorgan and Castleglen and could have contributed flows to the Glen Cairn pond. 	<p>The study will also be reviewing the results of the fog testing, and analyzing the capacity of the sanitary sewer system to identify potential flow restrictions and capacity upgrades to allow the sewer system to handle larger extraneous flows.</p> <p>A key element of the study will be an evaluation of the Hazeldean pumping station, including but not limited to the inlet structure and the overflow performance to define improvements as warranted. This is being coordinated with operational improvements and capacity needs to accommodate future growth.</p> <p>Phase 3 of the investigation is also looking into analyzing the Monahan Drain system in more detail to assess its performance during the July 24, 2009 storm implement mitigation measures as warranted.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Abbey Hill (constructed in 1965-1968)	91	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p> <p>The perimeter foundation drains for all homes in this area were constructed without the protection of a backwater valve.</p>	<p>Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>
Oriole (constructed in 1974)	31	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p> <p>The perimeter foundation drains for all homes in this area were constructed without the protection of a backwater valve.</p>	<p>Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Banning (constructed in 1964)	30	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p> <p>The perimeter foundation drains for all homes in this area were constructed without the protection of a backwater valve.</p>	<p>Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>
McKitrick (constructed in 1974-1979)	28	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p>	<p>Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.</p>

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Gowrie (constructed in 1982)	59	Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.	Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.
McElroy (constructed in 1975)	32	<p>Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system and could have been influenced by the surcharged levels in the Glamorgan system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.</p> <p>The perimeter foundation drains for all homes in this area were constructed without the protection of a backwater valve.</p>	Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.

Cluster Name	# of Reported Flooding Locations	Probable Source of Flooding	Status of Investigation
Halkirk (constructed in 1996)	21	Based on information reported, the majority of basement flooding resulted from sanitary sewer backups. This condition occurred as a result of high extraneous flows into the sanitary sewer system. It is suspected that a number of properties also experienced flooding through window wells and joints around basement floors as a result of storm drainage systems (sewers and overland drainage) not designed to handle large-infrequent rainfall events.	Phase 3 is underway and given the many contributing factors, a consultant is being retained for the Glen Cairn Flooding Investigation Study. This study will follow the Class Environmental Assessment process. This study will be analyzing in more details the hydraulic capacity of both sanitary and storm sewer systems. Fog testing is being conducted to identify sources of extraneous flows in the sanitary sewer system. The hydraulic analysis will also look at improving the ability of the storm drainage system to handle large-infrequent rainfall events, such as installation of inlet control devices and improvements to overland drainage.

MEMO / NOTE DE SERVICE



To / Destinataire	Mayor and Members of Council	File/N° de fichier:
From / Expéditeur	Wayne Newell, Director Infrastructure Services	
Subject / Objet	Status Update July 24, 2009 Flooding Investigation	Date: January 22, 2010

On September 2, 2009, staff made a presentation to Council on the July 24, 2009 severe rainstorm (over 100 mm of rain in a 24-hour period in some areas) that resulted in nearly 1,500 flooded basements, overflows at two sewage pumping stations, and seven culvert failures. These events occurred primarily in the City's west end, mainly in Ward 4 - Kanata North (Beaverbrook), Ward 5 - West Carleton-March (Carp Village), Ward 6 - Stittsville, and Ward 23 - Kanata South (Katimavik and Glen Cairn). An investigation, led by the Infrastructure Services Department (ISD) and supported by several City departments, was initiated immediately to understand why flooding occurred, what can be done to reduce the risk of future occurrences, and to implement solutions.

Council directed that staff move to solution implementation expeditiously as recommended works are identified. Staff are following that direction. All required work to achieve this goal is underway and solution implementation will begin in 2010.

The investigation consists of five phases: Phase 1 - Background data collection (complete); Phase 2 - Assessment and problem definition (complete); Phase 3 - Identification and evaluation of alternative solutions (ongoing); Phase 4 - Development and approval of action plan (Q3 2010); and Phase 5 - Implementation of approved action plan (commencing immediately after approval).

The purpose of this memo is to provide a status update on this investigation and to outline the budget requirements moving forward as directed by Council. Also attached is a summary report of the results of Phases 1 and 2 of the investigation for your information. The main report has also been completed and provides the technical details of the investigation. Two versions of the main report have been prepared since the investigation report is subject to a peer review and will be made available to the public. The substantial difference between the peer review version and the public version is the removal in the public version of references that could identify specific properties to protect privacy. The findings of both reports are otherwise identical. Phase 3 is ongoing. Solutions in some areas have been identified and the remaining areas will be completed in 2010.

Work continues on the review of alternatives and the selection of appropriate solutions that will reduce the risk of future basement flooding in the affected areas. Consultants are being retained to assist with this work. Public meetings have taken place in the most affected wards and moving forward, additional meetings will take place as solutions are identified. In Kanata South, for example, a Community Committee has been established and will continue to be involved throughout the process.

Given the complexity of the investigation, and the scope and the variety of solutions required to address different areas, targeted solutions will be identified and implemented as expeditiously as possible.

In an effort to minimize the possibility of delays in implementation, the following preliminary funding requirements are identified in the 2010 Draft Rate Supported Capital Budget. Projects and funding requirements for 2011 and 2012 will be refined in Phase 4. Depending on the scope of work, funding requirements could extend beyond 2012.

Projects (to be refined as part of Phase 3)	2010	2011	2012
Installation of Inlet Control Devices, sealing of Maintenance Hole covers and other flow removal measures	\$2.0M	\$1.0M	
Improvements to major system/overland drainage (design in 2010)	\$0.5M	\$1.0M	\$1.0M
Improvements to Hazeldean Pumping Station*	\$0.5M	\$2.0M	
Modifications to Monahan Drain	\$0.2M		
Sewer capacity and hydraulic improvements** (design initiated in 2010)	\$0.8M	\$7.5M	\$3.5M
Total	\$4.0M	\$11.5M	\$4.5M

* *Improvements to be undertaken in 2 phases. First phase focused on performance improvements that can be carried within the existing station and the second on those that require more extensive modifications. Does not include funding related to Front-ending Agreement.*

** *Specific projects will be defined as part of Phase 3. These may extend beyond 2012.*

Attached are some key messages for your reference.

Please do not hesitate to contact me or Alain Gonthier, Manager, Asset Management at extension 21197 should you require further information.

original signed by

W.R. Newell, P.Eng.

Attach. 1 – Phases 1 and 2 Investigation Summary Report

Attach. 2 – Key Messages

cc: Kent Kirkpatrick, City Manager
 Nancy Schepers, Deputy City Manager, ISCS
 Dixon Weir, General Manager, Environmental Services
 Chris Day, Manager, Corporate Communications

Attachment 13

Hazeldean PS Holding Zone

Council Approved Report - July 14, 2010

5. ZONING - HAZELDEAN PUMP STATION HOLDING ZONE

ZONAGE - ZONE D'AMÉNAGEMENT DIFFÉRÉ DE LA STATION DE POMPAGE HAZELDEAN

COMMITTEE RECOMMENDATIONS

That Council approve:

- 1. 1. An amendment to the Zoning By-law 2008-250 to change the zoning of properties within the Hazeldean Pump Station Sewershed such that a holding zone (h) is added to the existing zones, as illustrated in Documents 5 to 13 and detailed in Document 14.**
- 2. 2. That staff proceed with application for Certificate of Approval in accordance with the 1999 Region of Ottawa-Carleton Hazeldean Sewage Pumping Station Capacity Expansion Schedule B – Class Environmental Assessment to increase the capacity of the HPS to 1077 l/s.**
- 3. 3. That, consistent with existing delegated authority, the General Manager, Planning and Growth Management be directed to list by-laws providing for the lifting of the ‘h’ on a case by case basis upon confirmation that capacity is available.**
- 4. 4. That the General Manager, Planning and Growth Management be given authorization to waive the planning fees, identified in the Planning Fee By-law (2010-110), for a ‘Lifting Holding By-law’ application related to the subject ‘h’.**
- 5. 5. That the General Manager, Planning and Growth Management be directed to list a by-law for the lifting of the ‘h’ related to sanitary sewer capacity off of all properties once the Certificate of Approval for the Schedule A+ project to bring capacity to 1225 l/s has been issued and the Schedule B Class Environmental Assessment for the project to bring capacity to 1400 l/s is complete.**

RECOMMENDATIONS DU COMITÉ

Que le Conseil :

- 1. 1. approuve une modification du Règlement de zonage 2008-250 afin de changer le zonage des propriétés à l'intérieur de l'aire desservie par le réseau d'égout de la station de pompage Hazeldean en ajoutant une zone d'aménagement différé ('h') aux désignations de zonage existantes, tel que le montrent les documents 5 à 13 et que le décrit en détail le document 14;**

2. 2. demande au personnel de présenter une demande de certificat d'approbation de l'augmentation à 1 077 l/s de la capacité de la station de pompage Hazeldean, conformément à l'évaluation environnementale de portée générale, annexe B, effectuée par la Région d'Ottawa-Carleton en 1999 relativement à l'augmentation de capacité de la station de pompage Hazeldean;
3. 3. prescrit, conformément à la délégation de pouvoirs existante, au directeur général, Urbanisme et Gestion de la croissance, d'établir le texte de règlements municipaux prévoyant la levée de la restriction 'h' au cas par cas, une fois confirmée que la capacité voulue est disponible;
4. 4. autorise le directeur général, Urbanisme et Gestion de la croissance, à dispenser des droits d'aménagement, fixés par le Règlement municipal 2010-110, les demandes de levée de la zone d'aménagement différé relatives à la restriction 'h' en question;
5. 5. prescrit au directeur général, Urbanisme et Gestion de la croissance, d'établir le texte d'un règlement municipal prévoyant la levée de la restriction 'h', liée à la capacité de l'égout sanitaire, de toutes les propriétés une fois délivré le certificat d'approbation du projet d'annexe A+ de porter la capacité à 1 225 l/s et achevée l'évaluation environnementale de portée générale, annexe B, en vue de porter la capacité à 1 400 l/s.

DOCUMENTATION

1. 1. Deputy City Manager's report, Infrastructure Services and Community Sustainability, dated 4 June 2010 (ACS2010-ICS-PGM-0108).
2. 2. Extract of Minutes dated 22 June 2010.

Report to/Rapport au:

**Planning and Environment Committee
Comité de l'urbanisme et de l'environnement**

and Council / et au Conseil

4 June 2010 / le 4 juin 2010

Submitted by/Soumis par : Nancy Schepers, Deputy City Manager/Directrice municipale adjointe, Infrastructure Services and Community Sustainability/Services d'infrastructure et Viabilité des collectivités

*Contact Person/Personne-ressource : Michael Wildman, Manager/Gestionnaire, Development Review-Suburban Services/Examen des projets d'aménagement-Services suburbains, Planning and Growth Management/Urbanisme et Gestion de la croissance
(613) 580-2424, 27811 Mike.Wildman@ottawa.ca*

Stittsville (6), Kanata South (23)

Ref N°: ACS2010-ICS-PGM-0108

SUBJECT: ZONING - HAZELDEAN PUMP STATION HOLDING ZONE (FILE NO. D02-02-10-0032)

OBJET : ZONAGE - ZONE D'AMÉNAGEMENT DIFFÉRÉ DE LA STATION DE POMPAGE HAZELDEAN

REPORT RECOMMENDATIONS

That the Planning and Environment Committee recommend Council approve:

1. 1. An amendment to the Zoning By-law 2008-250 to change the zoning of properties within the Hazeldean Pump Station Sewershed such that a holding zone (h) is added to the existing zones, as illustrated in Documents 5 to 13 and detailed in Document 14.
2. 2. That staff proceed with application for Certificate of Approval in accordance with the 1999 Region of Ottawa-Carleton Hazeldean Sewage Pumping Station Capacity Expansion Schedule B – Class Environmental Assessment to increase the capacity of the HPS to 1077 l/s.
3. 3. That, consistent with existing delegated authority, the General Manager, Planning and Growth Management be directed to list by-laws providing for the lifting of the 'h' on a case by case basis upon confirmation that capacity is available.
4. 4. That the General Manager, Planning and Growth Management be given authorization to waive the planning fees, identified in the Planning Fee By-law (2010-110), for a 'Lifting Holding By-law' application related to the subject 'h'.

5. 5. That the General Manager, Planning and Growth Management be directed to list a by-law for the lifting of the 'h' related to sanitary sewer capacity off of all properties once the Certificate of Approval for the Schedule A+ project to bring capacity to 1225 l/s has been issued and the Schedule B Class Environmental Assessment for the project to bring capacity to 1400 l/s is complete.

RECOMMANDATIONS DU RAPPORT

Que le Comité de l'urbanisme et de l'environnement recommande au Conseil :

1. 1. d'approuver une modification du Règlement de zonage 2008-250 afin de changer le zonage des propriétés à l'intérieur de l'aire desservie par le réseau d'égout de la station de pompage Hazeldean en ajoutant une zone d'aménagement différé ('h') aux désignations de zonage existantes, tel que le montrent les documents 5 à 13 et que le décrit en détail le document 14;
2. 2. de demander au personnel de présenter une demande de certificat d'approbation de l'augmentation à 1 077 l/s de la capacité de la station de pompage Hazeldean, conformément à l'évaluation environnementale de portée générale, annexe B, effectuée par la Région d'Ottawa-Carleton en 1999 relativement à l'augmentation de capacité de la station de pompage Hazeldean;
3. 3. de prescrire, conformément à la délégation de pouvoirs existante, au directeur général, Urbanisme et Gestion de la croissance, d'établir le texte de règlements municipaux prévoyant la levée de la restriction 'h' au cas par cas, une fois confirmée que la capacité voulue est disponible;
4. 4. d'autoriser le directeur général, Urbanisme et Gestion de la croissance, à dispenser des droits d'aménagement, fixés par le Règlement municipal 2010-110, les demandes de levée de la zone d'aménagement différé relatives à la restriction 'h' en question;
5. 5. de prescrire au directeur général, Urbanisme et Gestion de la croissance, d'établir le texte d'un règlement municipal prévoyant la levée de la restriction 'h', liée à la capacité de l'égout sanitaire, de toutes les propriétés une fois délivré le certificat d'approbation du projet d'annexe A+ de porter la capacité à 1 225 l/s et achevée l'évaluation environnementale de portée générale, annexe B, en vue de porter la capacité à 1 400 l/s.

BACKGROUND

The Hazeldean Pump Station (HPS) is a sanitary sewage pump station located in the City's west end at 415 Michael Cowpland Drive. The drainage area tributary to the HPS is generally described as Wards 6 (Stittsville) and 23 (Kanata South) with the exceptions of lands immediately surrounding Scotiabank Place, the Terry Fox Business Park, the Kanata Town Centre south of Highway 417 and portions of the Katimavik-Hazeldean neighbourhood east of Castlefrank Road (see Document 1). In 2008, the City determined that an upgrade was needed to the HPS in 2011 to 2012 in order to keep pace with projected growth demands. The HPS is currently estimated to have approximately two years of residual capacity available to accommodate growth pressures. In order to manage growth in relation to available residual capacity within the HPS, this report recommends that a holding zone (h) be placed over certain developable lands which are tributary to the HPS. The 'h' would be lifted as capacity necessary to accommodate future growth pressures is confirmed.

Purpose of Zoning Amendment

The purpose of this Zoning By-law Amendment is to apply a 'holding zone' on the properties shown on the attached location maps to manage growth with respect to available capacity and until such time that capacity at the Hazeldean Pump Station can be demonstrated (either through identification of additional flow through the design of the pump station or through an upgrade to the pump station to create additional flow). The lands identified on Documents 2 and 3 are primarily vacant properties with development potential, or developed lands having redevelopment potential.

The Provincial Policy Statement speaks to providing infrastructure in a coordinated and cost-effective manner. In keeping with this policy direction, the City has undertaken monitoring of the Hazeldean Pumping Station. It was determined, based on projected growth, that an upgrade to the HPS would be necessary in approximately 2011-2012. Currently, sanitary flows in the HPS are below the rated capacity of the HPS; however, during the July 2009 rain event peak flows exceeded the rated capacity due to storm flows entering the sanitary system. It is estimated that, based upon historical consumption of capacity, there remains approximately two years of the residual capacity within the HPS. There are planning applications having an advanced status which are predicted to utilize over half of the two years' capacity. The City has already initiated the necessary Environmental Assessment in order to affect upgrades to the HPS. Acquiring provincial approvals could be delayed, as such it is considered prudent to implement a 'holding zone' over lands which are tributary to the HPS in order that the City can manage growth responsibly in relation to available capacity within the HPS, and to flag to property owners that future development requiring approval under the *Planning Act* may be put on hold where warranted until capacity is considered available within the HPS.

As noted, the City is actively engaged in working towards upgrades to the HPS, and the City will remove the "holding zone" on a case-by-case basis as capacity is confirmed. Furthermore, the 'h' will be removed in its entirety once the Schedule B upgrade to 1400 l/s has been completed.

Existing Zoning

The existing zoning of the subject sites vary and include a broad range of residential zones, mixed-use commercial zones, industrial zones and development reserve zones.

Proposed Zoning

The proposed holding zone will be created by adding a lower-case 'h' to the existing zone code of each property on the zoning maps with associated conditions for removal. The 'h' will have the effect of allowing the uses set out in the corresponding text of the by-law at some time in the future when the holding symbol is removed. Until the specified conditions are met the 'h' will permit those uses existing at the time of enactment of this by-law to continue with no adverse impacts.

Where a holding symbol has been added to the zone code of the property (Documents 5 to 13) all permitted uses are prohibited until the holding symbol is removed, except:

- (a) those that existed on July 14, 2010, or
- (b) any development that does not result in increased sanitary sewer flows to the Hazeldean Pumping Station.

DISCUSSION

In keeping with growth management policies of the Provincial Policy Statement (PPS), the City's Official Plan, the City's Infrastructure Master Plan and City Council's Strategic Plan, the City monitors growth rates such that requisite supporting infrastructure is delivered as needed in a financially sustainable way.

Provincial Policy Statement

The Provincial Policy Statement provides direction on matters of provincial interest related to land use planning and development, and promotes the provincial planning system.

Section 1.6.1, within the Infrastructure and Public Service Facilities Section of the PPS speaks to the provision of infrastructure and public service such that it is coordinated in an efficient and cost-effective manner. Subsequently, the PPS requires the planning for sewage services which direct and accommodate expected growth in a manner that promotes efficient use of existing municipal sewage services.

Municipalities are to ensure these systems are provided in a manner that integrate servicing and land use considerations at all stages of the planning process.

Official Plan

The Official Plan provides a vision of the future growth of the City and a policy framework to guide its physical development to the year 2021. The Plan serves as a basis for, or provides guidance on, a wide range of municipal activities and it addresses matters of provincial interest defined by the Provincial Policy Statement under the *Planning Act*.

The Official Plan provides the basis for the planning and approval of infrastructure services to be carried out by the City in support of future growth. In particular Section 4.4.1 of the Official Plan (Servicing in Public Service Area) expands upon the Provincial Policy Statements interests in Infrastructure and Public Service Facilities by identifying and outlining the policies the City uses to review development applications in order to ensure infrastructure is coordinated in a manner to support orderly growth. The City requires development applications in Public Service Areas to be supported by an assessment of adequacy of public services. Where services are found to be limited, proponents are required to demonstrate how public services will be provided to support development.

Infrastructure Master Plan

The Infrastructure Master Plan provides strategic directions and an integrated infrastructure planning and policy framework which will direct the City's continuing efforts to maximize value, including the role infrastructure plays in protecting the natural environment. To this effect, the three strategic directions identified are:

- 1) 1) Understand Growth Impacts on Infrastructure
- 2) 2) Cost and Value; and
- 3) 3) Integrate Infrastructure Planning

With respect to the first strategic direction, it has been identified that the City will predict and monitor the impacts of population and employment growth on infrastructure in order to ensure that infrastructure and services are delivered on time to support orderly growth.

Council's Strategic Plan

A new City Strategic Plan is created every four years to coincide with the new term of Council. To start the process in 2007, Council undertook an ambitious strategic planning exercise to establish priorities for their term, taking into account the City's ability to pay for them. The outcome was a Strategic Directions Report that listed six service priorities and three transformation priorities to form the basis of the 2007-2010 City Strategic Plan. Council's transformation priorities are: governance, service delivery, and sustainable finances. Council's service priorities are: transportation; transit; infrastructure renewal; solid waste and environment; sustainable, healthy and active city; and, planning and growth management.

Specifically, the service priority pertaining to planning and growth management speaks to ensuring that City infrastructure required for new growth is built and improved as needed to service the growth.

Servicing Issues

In 1999, the Region of Ottawa-Carleton completed a Schedule B Environmental Assessment (EA) which provided for up to 1077 litres per second (l/s) to be pumped at the HPS. The current Ministry of Environment (MOE) Certificate of Approval for the HPS establishes a rated capacity of 1000 l/s. As of February 5, 2010, existing flows at the HPS of 921 l/s have been assessed based upon detailed monitoring combined with modeled projections. Historical absorption rates of sanitary sewage are approximately 44 l/s/year. Therefore, there currently is approximately two years of residual capacity remaining in the HPS (Document 4). In March 2010, the MOE advised that, from an Environmental Assessment point of view, proceeding with an upgrade to the 1999 EA upset capacity of 1077 l/s is supportable subject to technical review and approval. Such an upgrade would not require construction of additional works, but would require changes in the operating parameters of the HPS. If approved by the Ministry of Environment, the upgrade would provide additional capacity which could add an additional 18 months to two years of capacity in addition to the existing residual capacity available and would result in a greater buffer within the HPS.

There are active planning applications of an advanced status for which capacity has been allocated at the HPS, thereby allowing these sites to proceed to construction; these applications are described as “allocated flows” (Document 14). The total allocated flows, should they all proceed, would result in total flows at the HPS of 988 l/s. There are other lands tributary to the HPS which have some form or another of planning status, and which wish to proceed to construction. The City has not supported the advancement of any additional lands beyond those described as the “allocated flows” on the basis that, after addition of the “allocated” flows, the HPS would be too near to its approved capacity.

During the July 2009 storm event, where the west end of the City experienced extensive basement flooding, storm water entered the sanitary sewer network through various sources which resulted in flows at the HPS of approximately 1150 l/s under surcharge conditions, or 150 l/s above the current approved rated capacity of the HPS. Causes and solutions are currently under review in order to ensure that the increase in flows due to storm water entering the sanitary system are removed or mitigated. It is expected that the action plan will be known in fall 2010.

Expansion of the HPS upgrades beyond the 1077 l/s are envisaged to occur as two projects, as warranted. The first project would see an increase to 1225 l/s and the second to 1400 l/s. The Ministry of the Environment has confirmed that it has no concerns with the City’s intent to proceed with the first project as a Schedule A+ activity under the Municipal Class Environmental Assessment process. This additional capacity is intended to address the gap between the current Environmental Assessment (EA) capacity of 1077 l/s and the flows recorded during the July 2009 event (1150 l/s). The increase in capacity would allow the City to maintain the buffer and prudently allocate capacity in the station for storm flows until other remedial actions are in place.

The second project requires the completion of a Schedule B EA which is currently underway. The findings of the ongoing flooding investigation in this service area will inform the Schedule B EA. The best case scenario would see completion of the Schedule B EA by the end of 2010; however, the EA is subject to requests for a Part II Order for a full Environmental Assessment, which could delay the project by 12 months or more. Construction of the second project would only proceed after satisfying the EA process.

Capacity Assignment

Upon approval and completion of the second project (Schedule B), to bring the HPS to 1400 l/s, the 'h' can be lifted from all affected properties. In the interim, any allocation of flow will be assigned once the issuance of a Certificate of Approval for the increase in capacity to 1077 l/s and the first project (Schedule A+), to 1225 l/s, have been approved by the MOE.

The assignment of capacity is expected to follow a 'first come, first serve' approach, whereby those development applications that have reasonably advanced such that approval can be granted will be allocated sanitary flows. However to avoid 'banking' of capacity, large projects will only be approved based on immediate needs. This process of allocating flow will remain in place until the Schedule B (1400 l/s) project is approved and will be reviewed by staff, in consultation with the applicant, on a case-by-case basis to ensure there is reasonable allocation of sanitary flow reserved for future development pressures.

Planning Fees

The approval of the 'Lifting Holding By-law' rests with the Manager, Development Review (Suburban Services) through delegated authority from Council, under the condition that the prescribed pre-conditions have been met. Given that the scope of work required to lift the 'h' will be identified, the level of staff review required to process the 'Lifting Holding By-law' will be minimal, and thus it is appropriate to waive the \$5,016 application fee. Applications to lift the 'h' received prior to the approval of the first project to bring capacity to 1225 l/s will be deemed premature and not processed by staff.

Summary

The implementation of a holding zone on the properties identified in Documents 2 and 3 is consistent with the policies of the Province of Ontario, the City's local planning policies and City Council's strategic service policies. These three levels of policy pertaining to the delivery of wastewater are consistent with each other and commonly identify the need to integrate land use planning with infrastructure delivery. The utilization of a holding zone to manage wastewater servicing is not only appropriate, but necessary, until such time as downstream capacity required to accommodate future land use decisions is confirmed.

It is therefore the recommendation of this report to establish a holding zone over all "non-allocated" lands identified in Documents 2 and 3. The 'h' could be lifted on a case by case basis as certain milestones are achieved, such as upon issuance of a Certificate of Approval for an increase in capacity to 1077 l/s and the approval of the detailed design regarding the first project to bring capacity to 1225 l/s. It will be the responsibility of the applicant to demonstrate that capacity is available. The City will in turn determine whether a buffer of residual capacity to protect against inflow and infiltration during future storm events is available. Should these determinations not be made, the holding zone will restrict development from proceeding to approval and construction; however, the review of planning applications will continue.

CONSULTATION

Notice of this application was carried out in accordance with the City's Public Notification and Consultation Policy. Significant consultation has taken place between City staff and the Ministry of Environment. The Ministry supports the City's plans for the upgrading of the Hazeldean Pump Station and the use of the holding zone to manage wastewater servicing. The Ward Councillors are aware of this application and the staff recommendation.

One supplementary public information session was held June 1, 2010 at City Hall. Comments from both the public information session and the 28 day circulation period are summarized in Document 15.

LEGAL/RISK MANAGEMENT IMPLICATIONS

A holding zone is an appropriate planning tool to utilize where the planning decisions have been made as to the form of development to take place but infrastructure capacity is not yet present. Given the status of the Hazeldean Pumping Station discussed above, it is anticipated that the overall use of the holding zone will likely withstand any appeal to the Ontario Municipal Board. Consistent with the recommendations, applications to lift the holding zone for individual properties will have to be assessed on a case by case basis.

ENVIRONMENTAL IMPLICATIONS

Expansion of the Hazeldean Pump Station beyond the 1999 EA upset capacity of 1077 l/s will occur as two projects. The first project would see an increase to 1225 l/s and the second to 1400 l/s. The Ministry of the Environment has confirmed that it has no concerns with the City's intent to proceed with the first project as a Schedule A+ activity under the Municipal Class Environmental Assessment process, providing buffer capacity at the Hazeldean Pumping Station, and the second project as a Schedule B, to address future development needs and possibly the outcome of the studies with respect to Glen Cairn. This report constitutes the public notification for the Schedule A+ project which is considered a "pre-approved" project under the Municipal Class EA.

FINANCIAL IMPLICATIONS

There are no direct financial implications associated with this report.

APPLICATION PROCESS TIMELINE STATUS

This application was processed by the "On Time Decision Date" established for the processing of Zoning By-law amendment applications.

SUPPORTING DOCUMENTATION

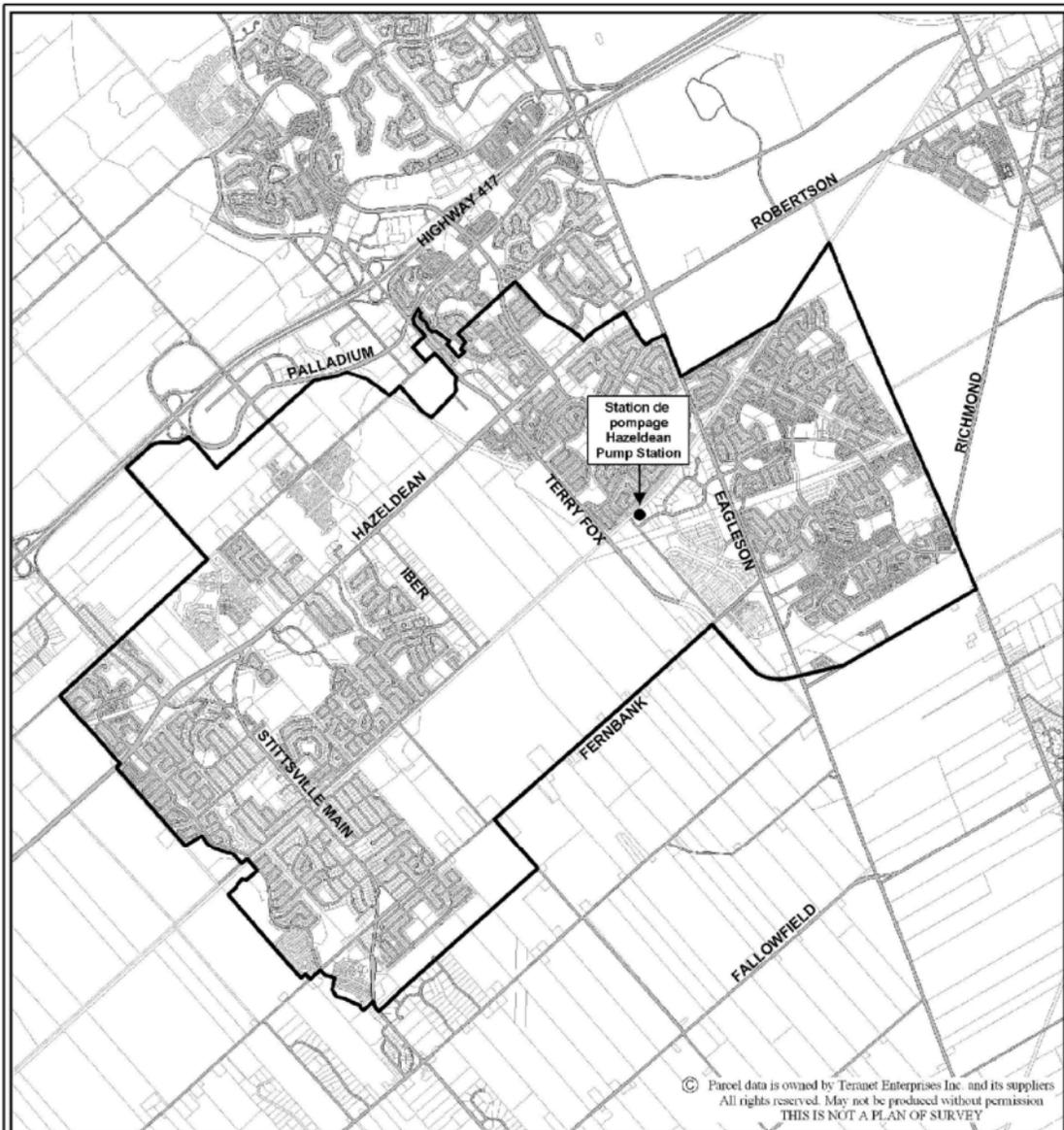
Document 1	Hazeldean Pump Station Catchment Area
Document 2	Affected Properties Map – Kanata South
Document 3	Affected Properties Map – Stittsville
Document 4	Hazeldean Pump Station Summary
Documents 5-13	Zoning Maps
Document 14	Allocated Flows Chart
Document 15	Details of Recommended Zoning

DISPOSITION

City Clerk and Solicitor Department, Legislative Services to notify the owner, applicant, OttawaScene.com, 174 Colonnade Road, Unit #33, Ottawa, ON K2E 7J5, Ghislain Lamarche, Program Manager, Assessment, Financial Services Branch (Mail Code: 26-76) of City Council's decision.

Planning and Growth Management to prepare the implementing by-law, forward to Legal Services and undertake the statutory notification.

Legal Services to forward the implementing by-law to City Council.



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REVISION DATE	DE RÉVISION

Location Map / Plan de révision
Zoning Key Plan / Schéma de zonage

 **Catchment Area - Hazeldean Pump Station**
Secteur desservi - Station de pompage Hazeldean

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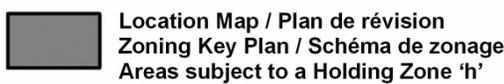
 **Location Map / Plan de révision**
Zoning Key Plan / Schéma de zonage
Areas subject to a Holding Zone 'h'

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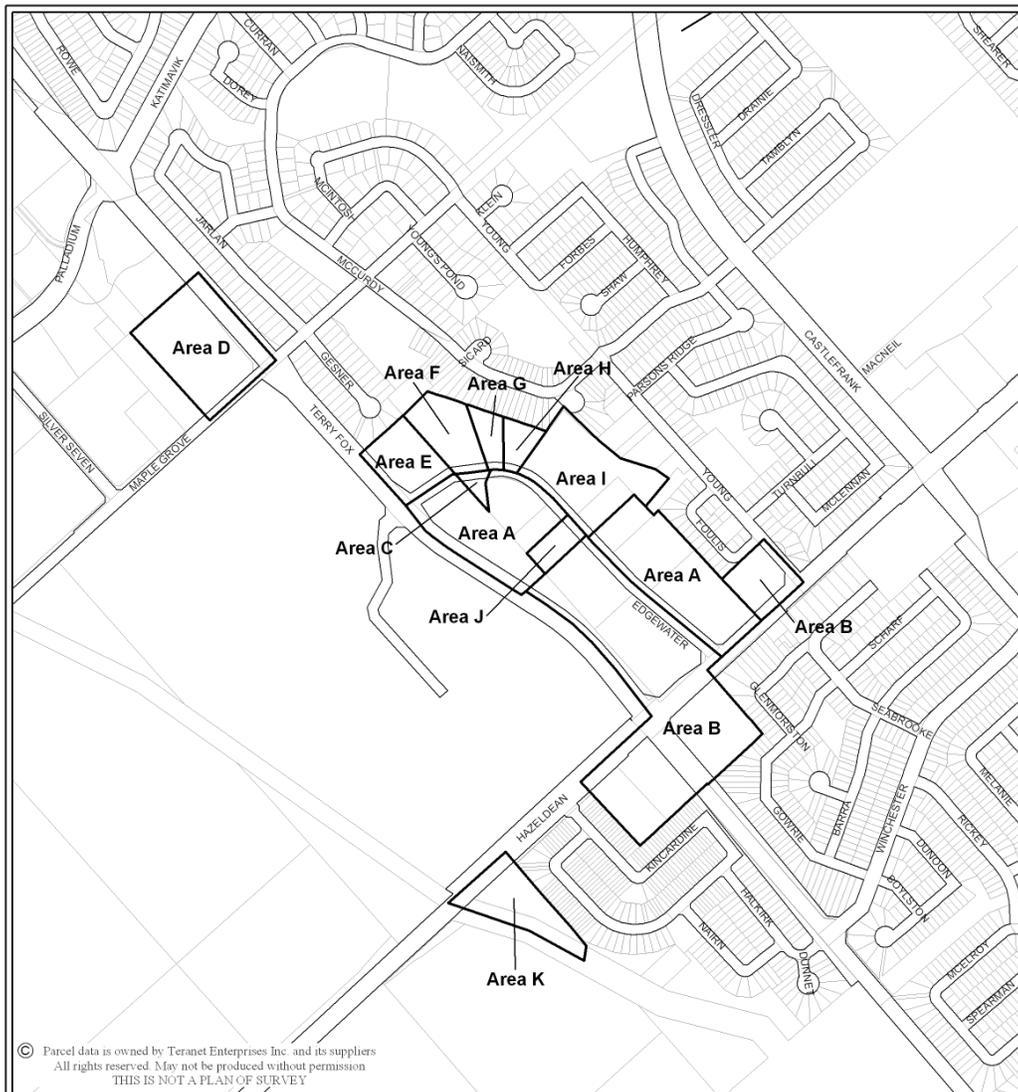
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FLOW INDICATOR	RATE OF FLOW (litres per second)	NOTES
Existing Flows	921 l/s	Based on Monitored Data
“Allocated Flows”	988 l/s	Planning Files which have advanced status
Current C of A Capacity	1000 l/s	MOE Approved ^{1[1]}
1999 EA Upset Capacity	1077 l/s	1999 EA identified 1077 l/s as HPS capacity. This can be accomplished with changes to the operating parameters of the HPS. MOE have indicated support from an EA point of view to proceed with a C of A application to allow 1077 l/s ^{2[2]}
July 2009 Peak Flows	1150 l/s	HPS operated at this peak flow under surcharge conditions, due to storm flows entering the sanitary system, where approximately 250 basements were flooded. City is analyzing options to remove potential sources. Findings are expected by end of summer 2010. Findings will inform the Phase 2 EA
Project 1	1225 l/s	Staged upgrade subject to a Schedule A+ EA
Project 2	1400 l/s	Staged upgrade subject to a Schedule B EA ^{3[3]}

^{1[1]} It is estimated that sanitary sewage is consumed at a rate of approximately 44 l/s/year based on historical data. For illustration purposes only, based on consumption rates, there would be approximately 18 to 24 months of capacity remaining in the HPS if allowed to consume up to the current rated capacity of 1000 l/s.

^{2[2]} For illustration purposes only, this would provide an additional 77 l/s of capacity and based on consumption rates would provide slightly less than an additional 24 months of capacity/buffer (total of approximately 36 to 48 months).

^{3[3]} EA is targeting the end of 2010 for completion, subject to Part 2 Orders, which could delay completion of the upgrade 12 months or more.



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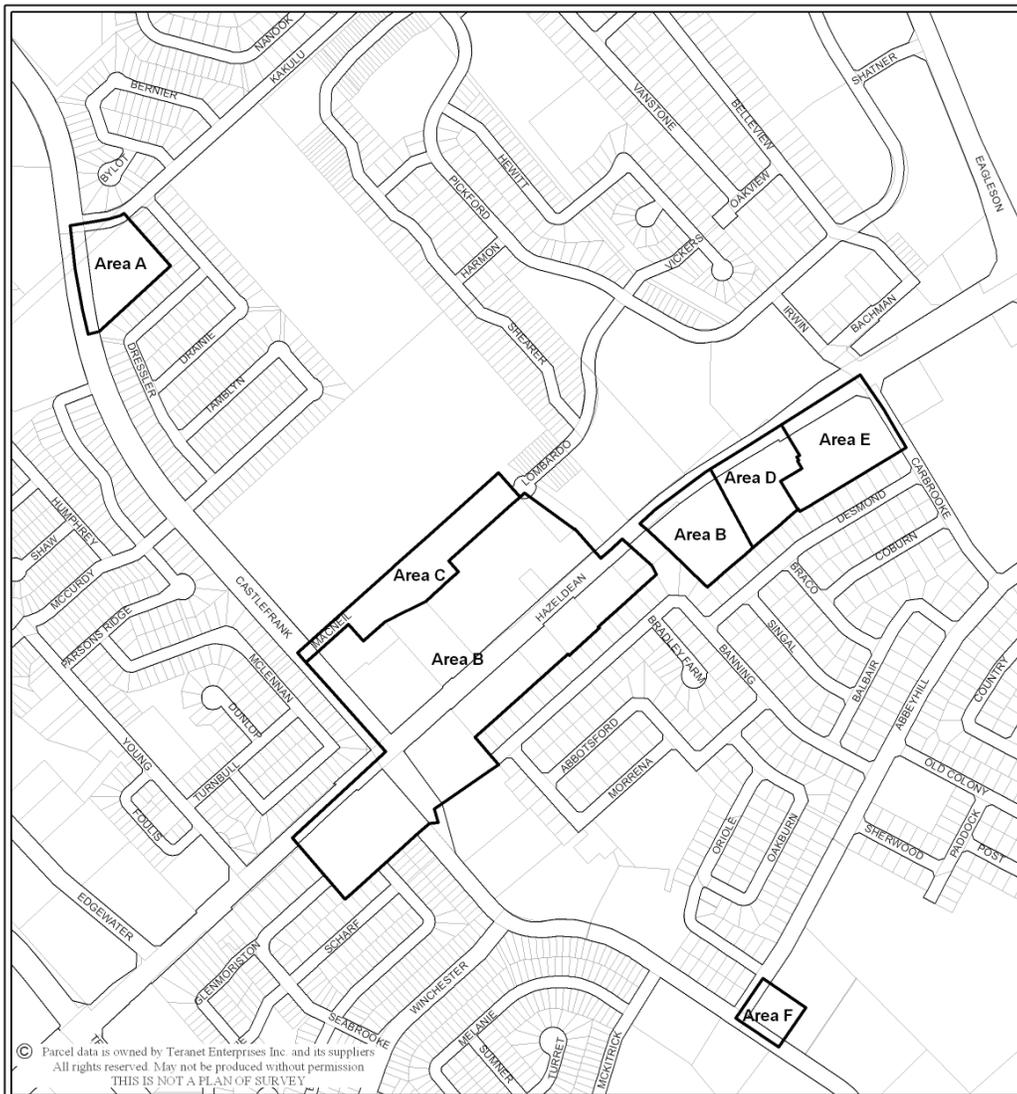
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Proposed Zoning	
Area A	- from IG2 to IG2[xxxx]-h
Area B	- from AM2 H(20) to AM2[xxxx] H(20)-h
Area C	- from IG2[1542] to IG2[1542]-h
Area D	- from IL5 H(22) to IL5[xxxx] H(22)-h
Area E	- from IG2[1543] H(7.5) to IG2[1543] H(7.5)-h
Area F	- from IG2[1540] to IG2[1540]-h
Area G	- from IG2[1538] to IG2[1538]-h
Area H	- from IG2[1539] to IG2[1539]-h
Area I	- from IG2[1541] to IG2[1541]-h
Area J	- from IG2[1534] to IG2[1534]-h
Area K	- from AM2[225] H(20) to AM2[225] H(20)-h

Échelle
 N.T.S.
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 Produced by Infrastructure Services and Community Sustainability Produit par Services d'infrastructure et Viabilité des collectivités		<p>Proposed Zoning</p> <p>Area A - from LC7[1517] H(30) to LC7[1517] H(30)-h Area B - from AM2 H(20) to AM2[xxxx] H(20)-h Area C - from RSA H(30) to RSA[xxxx] H(30)-h Area D - from AM2[1253] H(20) to AM2[1253] H(20)-h Area E - from AM2[1216] H(20) to AM2[1216] H(20)-h Area F - from LC7[1515] to LC7[1515]-h</p>	<p>Échelle N.T.S. Mètres</p>  <p>Scale N.T.S. Metres</p>
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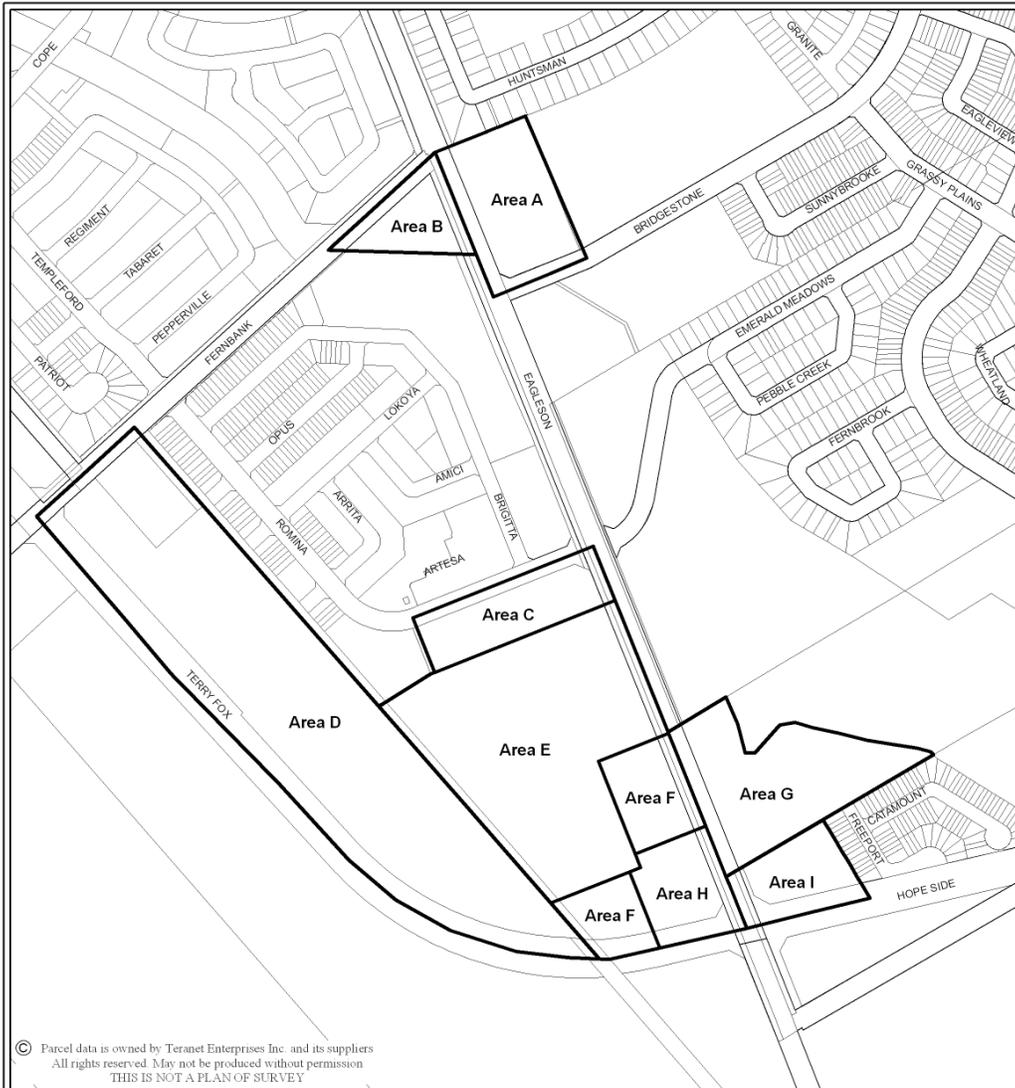
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 REVISION DATE DE RÉVISION

Proposed Zoning	
Area A	- from IP4 to IP4[xxxx]-h
Area B	- from IP4[395] F(4.0) H(20) to IP4[395] F(4.0) H(20)-h
Area C	- from IP4[1554] to IP4[1554]-h
Area D	- from IP4[284] to IP4[284]-h
Area E	- from IP4[1555] to IP4[1555]-h
Area F	- from AM H(21.5) to AM[xxxx] H(21.5)-h
Area G	- from AM[1198] H(22) to AM[1198] H(22)-h
Area H	- from GM[1198] H(22) to GM[1198] H(22)-h
Area I	- from AM[217] H(20) to AM[217] H(20)-h
Area J	- from R3X[1054] to R3X[1054]-h
Area K	- from IP5 H(21.5) to IP5[xxxx] H(21.5)-h
Area L	- from IP4[1556] to IP4[1556]-h
Area M	- from IP4[1752] to IP4[1752]-h

Echelle
 N.T.S.
 Mètres



Scale
 N.T.S.
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2010 / 04 / 22	
REVISION DATE	DE RÉVISION

Proposed Zoning

Area A	- text change only
Area B	- from I1A[1487] to I1A[1487]-h
Area C	- from GM[992] to GM[992]-h
Area D	- from IP9 to IP9[xxxx]-h
Area E	- from GM[1055] to GM[1055]-h
Area F	- from GM[1199] to GM[1199]-h
Area G	- from DR to DR[xxxx]-h
Area H	- from GM15 to GM15[xxxx]-h
Area I	- text change only

Échelle
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Scale
 N.T.S.
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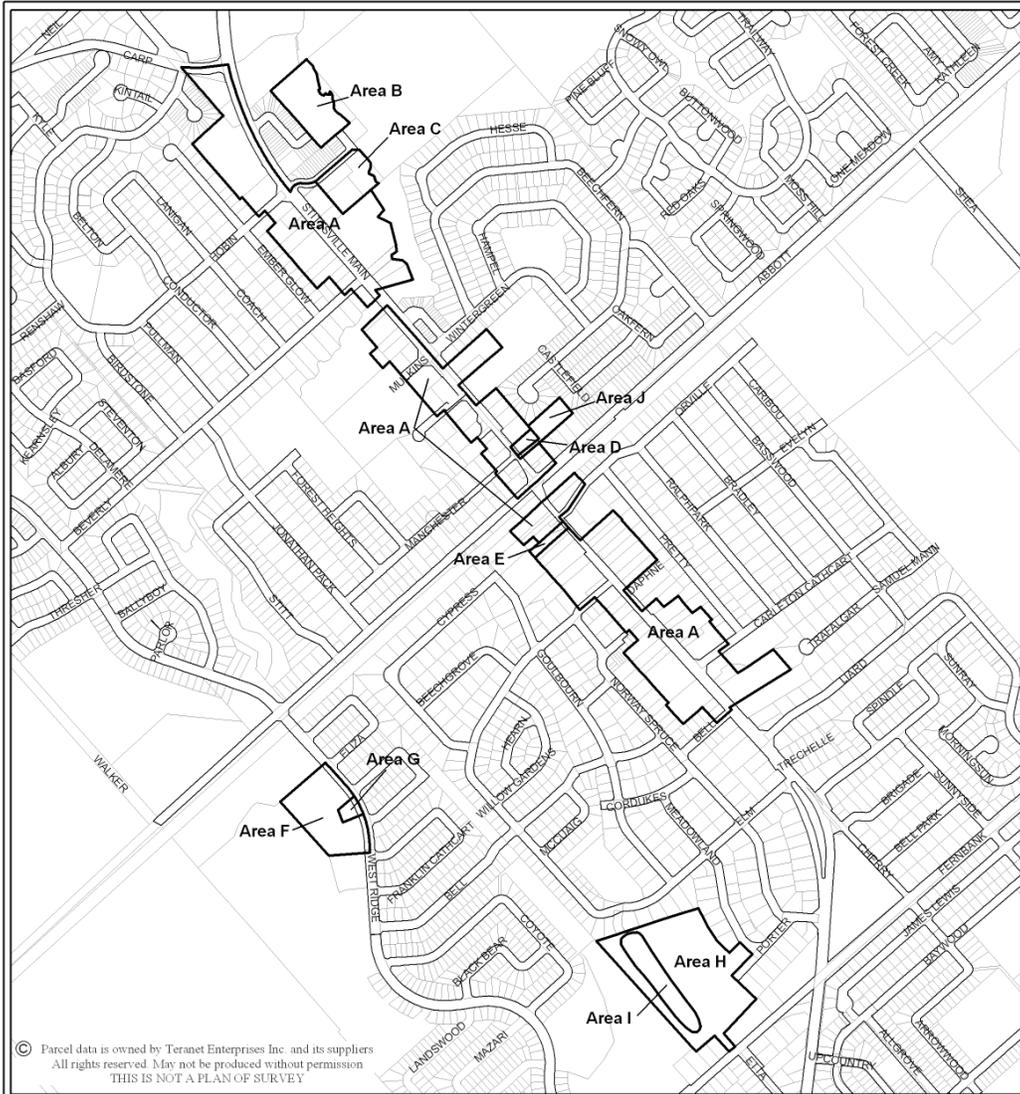
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REVISION DATE	DE RÉVISION

Proposed Zoning

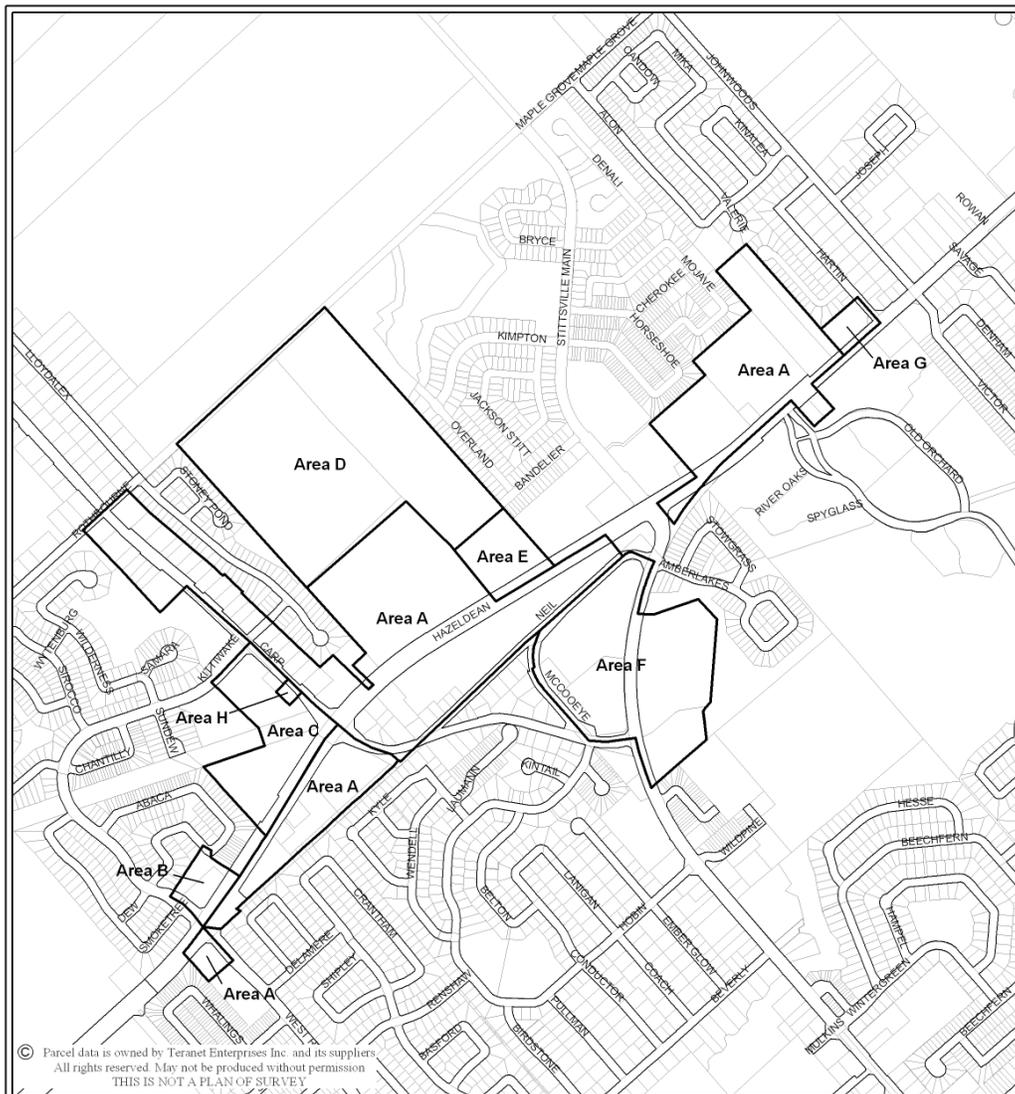
Area A - from LC7[227] to LC7[227]-h
Area B - from R5A H(30) to R5A[xxxx] H(30)-h
Area C - text change only
Area D - from DR to DR[xxxx]-h

Échelle
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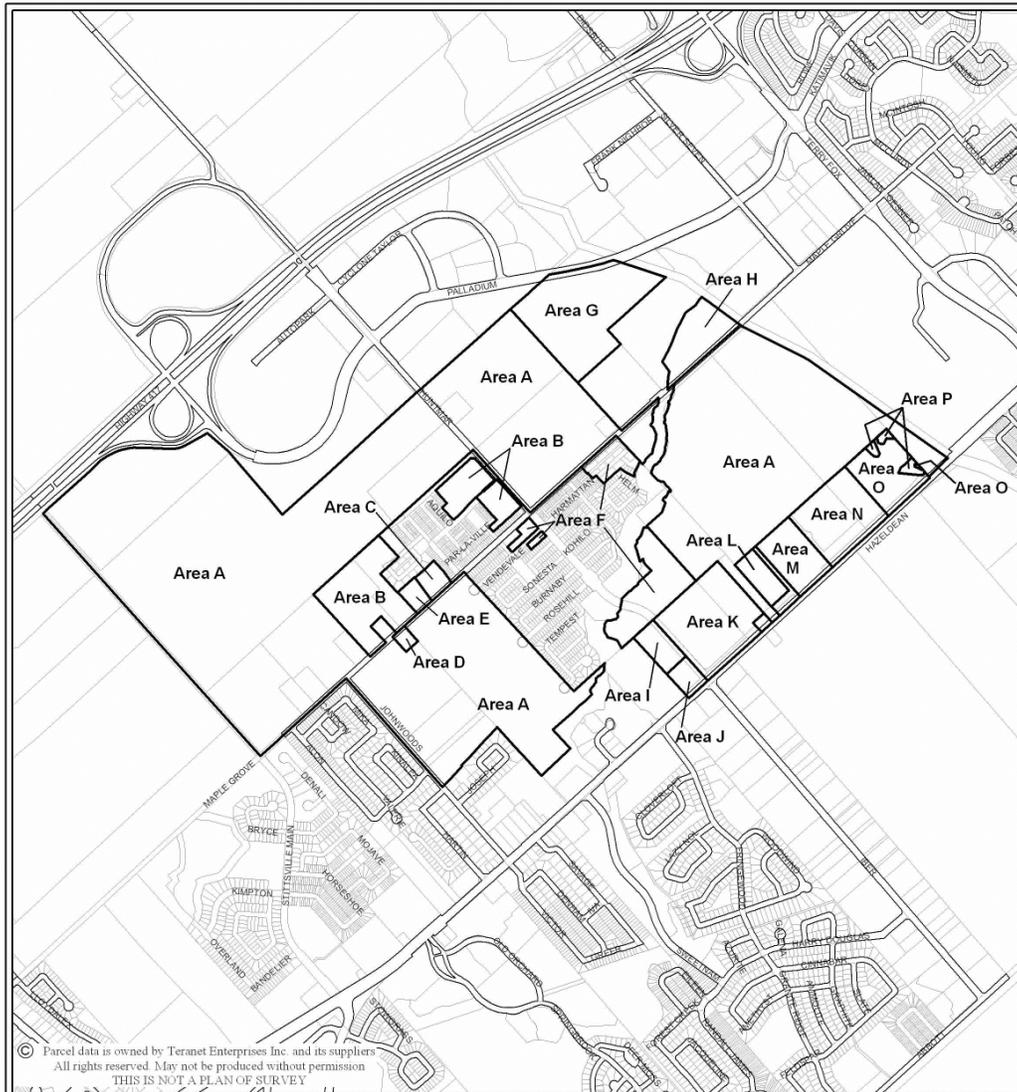
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 Produced by Infrastructure Services and Community Sustainability Produit par Services d'infrastructure et Viabilité des collectivités		Proposed Zoning		Échelle N.T.S. Mètres  Scale N.T.S. Metres
D02-02-10-0032	10-0572-A	Area A - from DR to DR[xxxx]-h Area B - from R3YY[1455] to R3YY[1455]-h Area C - from GM16[1470] H(10) to GM16[1470] H(10)-h Area D - from O1P to O1P[xxxx]-h Area E - from DR1 to DR1[xxxx]-h Area F - from R3YY[1297] to R3YY[1297]-h Area G - from DR[1] to DR[1]-h Area H - from IL to IL[xxxx]-h	Area I - from AM7[1444] to AM7[1444]-h Area J - from AM7[1445] to AM7[1445]-h Area K - from AM7[1446] to AM7[1446]-h Area L - from I1B[1568] to I1B[1568]-h Area M - from AM7[1569] H(35) to AM7[1569] H(35)-h Area N - from AM7[1695] H(35) to AM7[1695] H(35)-h Area O - from AM7[1695] to AM7[1695]-h Area P - text change only	
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 Produced by Infrastructure Services and Community Sustainability Produit par Services d'infrastructure et Viabilité des collectivités	Proposed Zoning	Échelle N.T.S. Mètres
D02-02-10-0032 10-0572-A I:\CO\2010...KANATA_AREAS.MXD	Area A - from GM14 H(11) to GM14[xxxx] H(11)-h Area B - from R4Z[1208] to R4Z[1208]-h Area C - from RM5 to RM5[xxxx]-h Area D - from GM14[468] H(11) to GM14[468] H(11)-h Area E - from IG[1560] to IG[1560]-h Area F - from GM14[474] H(11) to GM14[474] H(11)-h Area G - from DR to DR[xxx]-h Area H - from IL[1559] to IL[1559]-h Area I - from IL[308] to IL[308]-h Area J - from R4Z to R4Z[xxx]-h	 Scale N.T.S. Mètres
2010 / 05 / 25 REVISION DATE DE RÉVISION		

City File #	Application Type	Owner
D07-16-04-0032 D07-16-07-0011	Plan of Subdivision	1230374 Ontario Inc.
D07-16-07-0023	Plan of Subdivision	1384841 Ontario Inc. and Monarch Corporation Ltd.
D07-16-07-0025	Plan of Subdivision	Claridge Homes (Eagleson) Inc.
D07-16-05-0023	Plan of Subdivision	1590675 Ontario Inc.
D07-16-1500- SD22	Plan of Subdivision	561650 Ontario Ltd. and Thomas Cavanagh Ltd.
D07-16-05-0023	Plan of Subdivision	Urbandale Corporation
D07-12-09-0180	Site Plan	Conseil des Écoles Publiques de l'est de l'Ontario
D07-12-10-0044	Site Plan	Ottawa Carleton District School Board
D07-12-06-0211	Site Plan	ECL General Partner Ltd.
D07-12-09-0222	Site Plan	City of Ottawa
D07-12-07-0113	Site Plan	154 Iber Road Corporation
D07-12-10-0108	Site Plan	743104 Ontario Inc.
D07-12-07-0236	Site Plan	1384841 Ontario Inc.
D07-12-07-0281	Site Plan	Orville Station Ltd. and Stittsville Main Street Ltd.

^{4[4]} Note: Each property identified may not have flows allocated such that the entire development can be fully constructed

DETAILS OF RECOMMENDED ZONING

1. Rezone the subject properties as shown on Documents 5-13, to add a holding symbol and create conditions for the removal of the holding symbol.

2. Amend Section 239 - Exceptions of By-law 2008-250 to create an exception zone, [xxxx], that includes the following prohibition on use and a condition for removal of a holding symbol:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that does not result in increased sanitary sewer flows to the Hazeldean Pump Station, are prohibited until the holding symbol is removed.

- the holding symbol can be removed only at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit the development of the property.

3. Further amend Section 239 - Exceptions of By-law 2008-250 to create an exception zone, [yyyy], for 1130 Carp Road that includes the following prohibition on use and a condition for removal of a holding symbol:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that results in increased sanitary sewer flows to the Hazeldean Pump Station of no more than 6 litres/second, are prohibited until the holding symbol is removed.

- the holding symbol can be removed only at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit further development of the property above the 6 litres/second threshold.

4. Amend exceptions 1, 217, 225, 226, 227, 284, 308, 392, 395, 465, 468, 474, 992, 1046, 1054, 1066, 1055, 1198, 1199, 1208, 1216, 1253, 1272, 1297, 1453, 1454, 1455, 1463, 1470, 1484, 1487, 1515, 1517, 1519, 1534, 1538, 1539, 1540, 1541, 1542, 1543, 1554, 1555, 1556, 1559, 1560, 1671, 1699 and 1752 to add a prohibition on use and a condition for removal of a holding symbol as follows:

- where a holding symbol has been added to the zone code of the property, because the property is serviced by the Hazeldean Pumping Station, all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that does not result in increased sanitary sewer flows to the Hazeldean Pump Station, are prohibited until the holding symbol is removed.

- where a holding symbol has been added to the zone code of the property, because the property is serviced by the Hazeldean Pump Station, the holding symbol can only be removed at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit the development of the property.

5. Amend exception 1272, for 1122 Carp Road and 6303 Hazeldean Road, to add a prohibition on use and a condition for removal of a holding symbol as follows:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that results in increased sanitary sewer flows to the Hazeldean Pump Station of no more than 6 litres/second, are prohibited until the holding symbol is removed.

- the holding symbol can be removed only at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit further development of the property above the 6 litres/second threshold.

6. Amend exceptions 1444, 1445 and 1446, for 5717, 5653 and 5705 Hazeldean Road, to add a prohibition on use and a condition for removal of a holding symbol as follows:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that results in increased sanitary sewer flows to the Hazeldean Pump Station of no more than 5.7 litres per second, are prohibited until the holding symbol is removed

- the holding symbol can be removed only at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit further development of the property above the 5.7 litres/second threshold

7. Amend exceptions 1568, 1569 and 1695, for 613 and 5585 Hazeldean Road, to add a prohibition on use and a condition for removal of a holding symbol as follows:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
- (b) any use or development that results in increased sanitary sewer flows to the Hazeldean Pump Station of no more than 13.3 litres per second, are prohibited until the holding symbol is removed

- the holding symbol can be removed only at such time as it is shown to the satisfaction of the General Manager of Planning and Growth Management that the Hazeldean Pump station has the necessary capacity to permit further development of the property above the 13.3 litres/second threshold

8. Amend exception 1570 for 613 Hazeldean Road to add a prohibition on use and a further condition for removal of a holding symbol as follows:

all permitted uses, except:

- (a) those that existed on July 14, 2010, or
 - (b) any use or development that results in increased sanitary sewer flows to the Hazeldean Pump Station of no more than 13.3 litres per second,
- are prohibited until the holding symbol is removed

- the General Manager of Planning and Growth Management is satisfied that the Hazeldean Pump station has the necessary capacity to permit further development of the property above the 13.3 litres/second threshold

NOTIFICATION AND CONSULTATION PROCESS

Notification and public consultation was undertaken in accordance with the Public Notification and Public Consultation Policy approved by City Council for Zoning By-law amendments. A notice of the proposed rezoning was published in the Citizen and Le Droit. In addition, notice by first class mail was provided to the 345 property owners affected by the proposed holding zone. Approximately 40 written comments were received. The most common comment received was a request for further information, specifically details as to the proposed timeframe for upgrades to the Hazeldean Pumping Station so that owners could assess when the holding designation might be lifted, and the criteria to be used by the City in lifting the holding designation on individual properties, such as the amount of capacity utilized in any particular development.

In response to multiple requests for background information and rationale for the holding zone, an information meeting was held on June 1st, 2010 at City Hall. Notice of the meeting was provided to all parties who had previously provided comments or requested notification of future meetings. The following is a summary of questions raised at the meeting and in comments received.

SUMMARY OF QUESTIONS/COMMENTS AND ANSWERS

Q: What does this mean for development in the area?

A: Development of an advanced status which is currently allocated to drain to the HPS can proceed. Other lands will be subject to a temporary hold and as capacity is realized, the hold will be lifted where appropriate. Development applications will continue to be reviewed during the temporary hold.

Q: Why is the City utilizing a hold zone in this circumstance?

A: While the HPS has available sanitary capacity, there was a storm event in July 2009 in which storm flows entered the sanitary system, including the HPS. The resultant flows in the HPS exceeded the rated capacity of the HPS. The City is investigating the causes and will make recommendations to remove and mitigate storm flows from entering the HPS. A Class Environmental Assessment is already underway as part of planned upgrades to the HPS. In the meantime, given the July 2009 storm, a temporary hold to manage capacity allocation is prudent. A holding zone is used to ensure that the infrastructure needed to accommodate new development is in place prior to permitting approvals and construction. It is a growth management tool to ensure growth is managed in a responsible manner.

Q: What is the plan to get more capacity at the Hazeldean Pump Station?

A: The City is currently working on upgrades to the station. The City is planning upgrades to occur over the next two years.

Q: What will be the effect on people who bought homes in the area?

A: The City has kept active developers in the area up to date on infrastructure issues. The City has no control over when landowners and builders make commitments to homeowners. There will be no temporary hold on development currently allocated to connect to the system, however, other lands subject to the holding zone will be temporarily placed on hold and released in stages as capacity is realized

Q: What does the Ministry of the Environment say about the City's plans?

A: The City has consulted with the Ministry and is working with Ministry on the planned upgrades. The Ministry has advised that they have no concerns with the City's proposed approach for meeting Municipal Class Environmental Assessment requirements for the HPS upgrades.

Q: When will the holding zone take effect?

A: A report recommending the hold will be brought before the Planning and Environment Committee on June 22nd, 2010 and to Council on July 14th, 2010. If approved, it will take effect immediately. The hold is subject to appeal to the Ontario Municipal Board.

Q: What does the holding zone mean?

A: The holding zone means that before connections to the sewer system can be made for new development, City staff will review the predicted flows and capacity and determine if the connection should be allowed to proceed. The evaluation would be conducted as part of the review of a development application, and the holding zone would be lifted where appropriate.

Q: Why wasn't capacity added earlier?

A: There is approximately two years of capacity available, and an ability to add more capacity; however, as a result of the July 2009 peak flows, there is need to ensure that the storm flows are removed or mitigated. Infrastructure needs are delivered on an as-needed basis. The need for increased future capacity was identified and projects to increase capacity were approved last year. The City is moving forward on these planned upgrades.

Q: Why is my property allowed to connect and not my neighbours?

A: All properties currently approved to connect to the system can connect. These are projects in an advanced stage of development and capacity at the station has been allocated to these projects. As capacity at the station is expanded, future flows will be allocated on the basis of those projects that have all of the requisite approvals in place on a first come, first served basis.

Q: Why can't the Fernbank lands connect now?

A: Development in this area is not at an advanced stage. Flow capacity at the station has not been allocated to Fernbank development projects. Like all project in this stage of readiness, they are subject to a hold until works at the station to add capacity are complete.

Q: What is the process for the Fernbank lands?

A: The Official Plan amendment for the Fernbank lands is still before the Ontario Municipal Board. By virtue of a previous Ontario Municipal Board Hearing, sanitary capacity at the Hazeldean Pump Station (HPS) for the Fernbank lands is tied to the completion of the Environmental Assessment Process for the HPS. All planning and development work in the area can continue. However, works at the station to expand capacity at the pumping station must be completed before approvals are given.

Q: Why are properties which do not have connections to the City's public sanitary system included in the holding zone?

A: Although a parcel of land that is currently serviced by private services may receive the 'h', the text of the Zoning By-law will ensure the holding zone is applicable to all permitted uses within the effected zone, except those uses that existed prior to enactment of the Zoning By-law

and any development that does not result in increased sanitary sewer flows to the Hazeldean Pumping Station.

C: Some sites affected by the Holding Zone are occupied by recently constructed residential or commercial projects. We are concerned that purchasers may misunderstand the implications of the holding zone. It must be made clear to all prospective purchasers that the holding provision does not prevent the construction and sale of these developments, nor does it prevent the subsequent resale of any of the units.

A: The holding zone will have no impact on recently constructed developments. Servicing capacity at the station has been allocated to these projects. The holding provision will be clear that the required upgrades are to accommodate new development, and does not prevent the construction and sale of developments with allocated flow, nor does it prevent the subsequent resale of any of the units.

C: When we developed our property, the City imposed a range of fees and levies, many of which to cover infrastructure costs. We have also paid millions of dollars in property taxes to the City over the years. I cannot think of any extraordinary demands we will impose on the system. It appears that the capacity problems were foreseeable and could have been avoided. The appropriate course of action is to suspend new construction until the infrastructure can be upgraded.

A: The need for increased future capacity was identified and projects to increase capacity were approved last year. The capacity issue has been dealt with as soon as it was identified, and the upgrades are part of the plan to manage growth responsibly. The City is moving forward on these planned upgrades in an expeditious manner.

C: As owners of an industrial building, we were contemplating constructing an addition in the near future. The proposed holding zone means we are at risk of outgrowing our facility with no option for expansion. Warehouse additions with no demand for additional services should not affect the pumping station, and should be exempt from the hold.

A: Before connections to the sewer system can be made for new development, staff will review the predicted flows and capacity and determine if the connection should be allowed to proceed. Where appropriate, the holding zone will be lifted.

Q: Why are some of the large parcels of land north of Hazeldean Road not affected by the Holding Zone?

A: The lands north of Hazeldean Road will be subject to the holding zone as well but portions of the developments that have been approved and have been allocated flows at the Hazeldean Pumping Station and can proceed.

C: We preconsulted with the City in March 2010 regarding a new commercial development, and were not advised of any servicing capacity issues. Due to commitments made as a result of that meeting, the delay caused by the holding zone will have a significant financial impact. The project should be considered to be at an advanced stage of development.

A: There are certain projects in an advanced stage of development, which have capacity allocated at the pumping station. These projects have already received Site Plan Control Approval. As capacity at the station is expanded, future flows will be allocated on the basis of those projects that have all of the requisite approvals in place on a first come, first served basis.

C: Some very small parcels are included in the proposed holding designation. The capacity utilization of these parcels is minimal and doesn't seem to justify their inclusion in the holding designation. Owners may want to expand or replace the building with a larger one.

A: Initially all property owners are treated in a consistent manner, by having the holding zone applied regardless of property size. Many small sites could have the cumulative impact of a large site. Depending on the criteria established and timing and availability of capacity after initial upgrades to Hazeldean Pumping Station, parcel size and advanced planning status may be a consideration for where lifting of the "h" occurs by the City.

Q: Will the Holding Zone impact the sale of my property by making it difficult to sell?

A: The holding zone has no adverse legal implication regarding the sale of properties. As indicated within the text of the report, those uses that existed prior to June 22, 2010 remain legally permitted uses. Furthermore new development that does not result in increased sanitary sewer flows to the Hazeldean Pumping Station would also be permitted.

Q: How will additional capacity be allocated, once it becomes available?

A: Upon approval and completion of Project 2 (1400 l/s), the 'h' can be lifted from all affected properties. In the interim, any allocation of flow will be assigned once the issuance of a Certificate of Approval for the increase in capacity to 1077 l/s and the detailed design of the first project (Schedule A+), to bring capacity to 1225 l/s, has been approved. The assignment of capacity is expected to follow a 'first come, first serve' approach, whereby those development applications that have reasonably advanced such that approval can be granted will be allocated sanitary flows.

Q: What if one large development attempts to claim most of the available allocation, and others can't proceed?

A: In order to avoid 'banking' of capacity, large projects will only be approved based on immediate needs. This process of allocating flow will remain in place until the Schedule B (1400 l/s) project is approved and will be reviewed by staff, in consultation with the applicant, on a case-by-case basis to ensure there is reasonable allocation of sanitary flow reserved for future development pressures.

Q: What is the mechanism for lifting of the Holding Zone?

A: The 'h' could be lifted on a case by case basis as certain milestones are achieved, such as issuance of a Certificate of Approval for an increase in capacity to 1077 l/s and the approval of the detailed design to bring capacity to 1225 l/s has been approved. It will be the responsibility of the applicant to demonstrate that capacity is available. The City will in turn determine whether buffer of residual capacity to protect against inflow and infiltration during future storm events is reasonable.

COMMUNITY ORGANIZATION COMMENTS

The Stittsville Village Association (SVA) expressed their full support for the proposed Holding Zone and wishes to see clear exception criteria outlined for releasing the Holding Zone ('h') on a case by case basis.

7. ZONING - HAZELDEAN PUMP STATION HOLDING ZONE
ZONAGE - ZONE D'AMÉNAGEMENT DIFFÉRÉ DE LA STATION DE
POMPAGE HAZELDEAN
ACS2010-ICS-PGM-0108 STITTSVILLE (6) / KANATA SOUTH (23)

(This matter is Subject to Bill 51)

Committee received the following correspondence with respect to this item:

- • Comments dated 22 June 2010 from Lloyd Hope, with respect to 5271 Richmond Road
- • Letter dated 21 June 2010 from Miguel Tremblay for Dharma Developments: 1491 / 1493 Stittsville Main Street
- • Letter dated 20 June 2010 from Faith Blacquiere
- • E-mail dated 20 June 2010 from Ted Cooper
- • Letter dated 21 June 2010 from Kathleen Willis for North American (Goulbourn) Corporation
- • E-mails dated June 4 and 17 from Kevin Yemm for Richcraft
- • Letter dated 6 June 2010 from Beth Henderson for Riotrin Properties (Hazeldean) Inc.
- • Letter dated 27 May 2010 from Janet Bradley, Borden, Ladner, Gervais, for 743104 Ontario Inc.
- • Letter dated 21 May 2010 from Habib Chabour, 1763295 Ontario Inc.

Michael Wildman, Manager of Development Review, Suburban Services, presented staff's recommendations with respect to the Hazeldean Pump Station Holding Zone. He was accompanied by Guy Bourgon, Program Manager, Development Review (Suburban Southeast) and Don Herweyer, Program Manager, Development Review (Suburban West.)

The Chair began by noting that the proposed Holding Zone related to the City's ability, through the Ministry of the Environment (MOE) to proceed to upgrade the Hazeldean Pump Station using a Class A+ Environmental Assessment (EA) process. He noted the Holding Zone was part of an agreement that the City reached with the MOE to allow upgrades to proceed, and suggested that if the City did not go forward with the holding zones on the recommended properties, the City would likely be required to go back through a schedule B EA process

Mr. Wildman agreed with the Chair's assessment, noting that after many months of working with Ministry on finding the path forward for the EA an understanding was reached with the Ministry that the Ministry would support a Schedule A+ EA for the first project upgrade, on the understanding that the City would pass a holding designation and that development would be controlled to a certain flow rate until the full upgrades were complete. The Chair suggested that if Committee

and Council were to remove properties from the holding could jeopardize the City's ability to proceed under the A+ scenario. Mr Wildman agreed.

In response to questions from Councillor Holmes, Mr. Wildman suggested that if Committee were to remove properties from the Holding Zone, the Ministry would have pause for reflection on their agreement with the City and predicted, which could lengthen the process and delay the establishment of the much-needed buffer to help prevent against flooding such that which took place in July 2009.

Mr. Wildman noted that in the preceding nine months the City had been working on a path forward to provide for a buffer to help prevent flooding such as that experienced by residents in July 2009. He explained that what was recommended was a temporary holding ("h") designation applied over an area of approximately 3000 hectares and approximately 360 very diverse properties. He suggested staff had been consistent in its approach and analysis in determining the best path forward for each property, although each property had specific differences.

Mr. Wildman predicted that some property owners would raise the argument that their particular property only a small flow, and therefore should be allowed to proceed. He cautioned against removing such properties from the holding designation, as they could collectively result in a problematic flow volume. He predicted other owners would argue that their lands did not have to go to the Hazeldean Pump Station, and therefore should be removed from the holding zone. He explained that those properties that could go to the Hazeldean Pump Station, even if only on a temporary basis, were recommended to be included in the holding zone, as it was common practice for interim measures to be employed, and these could result in those properties proposing to connect to the Hazeldean Pump station.

Mr. Wildman then proceeded with a detailed PowerPoint presentation to review staff's report and recommendations, a copy of which is held on file with the City Clerk.

In response to questions from Councillors Feltmate, Qadri and Monette, staff provided the following additional information:

- • Infrastructure Services staff has been actively involved in tracing all the sources they could find of the storm inflow that got into the sanitary system in July 2009, and are looking at many measures that would provide for its removal. These measures could range from the use of inlet control devices to upgrades to storm sewers themselves.
- • Even though they would be providing for additional capacity at the Hazeldean Pump Station, they would also be removing storm flows through those other measures, further increasing the buffer against peak flows experienced during the July 2009 storm event.

- • Staff would begin lifting the Holding Zone on a case-by-case basis once the Certificate of Approval was in place for the 1225 l/s project upgrade and the pump in place to provide the needed capacity.
- • Development would be limited to 1077 l/s until the ultimate project upgrade of 1400 l/s was in place.
- • To lift the holding provision, the General Manager, with the concurrence of the Ward Councillor, would authorize listing of a By-law on the City Council agenda to lift the Holding provision off a particular property. There would not be a report to Committee and Council.
- • Staff's recommended approach is to allocate capacity on a first come first serve basis, as applications advance through the planning process. Commercial and Industrial properties would not be treated with a higher priority.
- • When asked to Comment on why similar measures were not undertaken after the July 2006 flooding in Orléans, Mr. Wildman noted he was not the lead on that file. He indicated that, in the case of the west end flooding it was clear that the flows in the pump station exceeded the rated capacity and staff had to move forward with the Ministry to develop a go-forward plan to increase the capacity above the peak flows.
- • With respect to the Carp River, Mr. Wildman noted that the work underway by Infrastructure Services examined all potential sources of the flooding, and if the Carp River was found to be a source, it would be looked at for mitigation measures.
- • Staff is unable to indicate precisely how many years of development would be guaranteed by the ultimate 1400l/s of flow provided by the Hazeldean Pump station upgrades. Although they are absorbing capacity at a rate of approx 44 l/s per year, the equation is complicated by the fact that the Kanata Pump Station, to be commissioned around 2016, will divert some of the flows. Staff is monitoring the capacity and a go-forward plan will ensure the capacity is available when needed and the upgrades occur when needed.
- • Staff intends to continue reviewing planning applications throughout the temporary hold period, and will advance the planning applications as far as possible, although certain files which do not currently have allocated flows will not receive final approval until the 1225l/s upgrade is in place. Staff expects to be able to start lifting the "h" in early 2011.
- • Holding will be lifted on a first come first serve basis, and this order will not be affected by the amount of flow contributed by a particular property. Staff will follow a "no banking" policy and thus will not be allocating large amounts of capacity.
- • Staff is undertaking a system-wide review of west end sanitary network, under the direction of Roman Diduch, Program Manager of Infrastructure Policy, that will address the issue of how the downstream pumping stations are and will function, which would inform the Schedule B EA for the 1400 l/s upgrade.
- • Staff is generally confident that they are on track with scheduling pump station upgrades relative to growth pressures. In the case of the Hazeldean

Pump Station, the major storm event was a complicating factor. Staff continues to monitor and track the growth relative the capacity in the pump stations.

Councillor Qadri made the following direction to staff:

DIRECTION TO STAFF:

That the results of staff's system-wide sanitary study come back to Planning and Environment Committee for information.

Committee then heard from the following Public Delegations:

Mr. Yemm, Richcraft Homes Ltd. spoke in opposition to the staff recommendations. Specifically, he expressed opposition to parcels outside of the Hazeldean Pump Station Service Area being included in the draft by-law, which included the land owned by Richcraft. He raised the following objections:

- • The holding zone concerns land serviced by the Hazeldean Pump Station, while Richcraft's parcel of land is to be serviced by the Kanata West Pump Station
- • There are several existing mechanisms for the City to impose restrictions on development
- • The Holding Zone would result in unnecessary additional administration and costs
- • While the current staff and Council understand the context of the holding zone and the development climate, The Holding Zone could result in undue prejudice from future councils and community groups.

In conclusion, Mr. Yemm recommended that the Holding Zone exclude lands designed to drain to other pumping stations, and that the Richcraft lands be removed from the proposed draft zoning by-law amendment. A copy of Mr. Yemm's detailed PowerPoint Presentation is held on file with the City Clerk.

Mr. Wildman spoke to the issue of why the Richcraft lands were included in the holding zone. He reiterated that the zone included some parcels that were not ultimately intended to go to the Hazeldean pumping station, but it is common practice for interim measures to be requested to allow for servicing to proceed. In this case staff believed there was a possibility that the Richcraft lands could proceed to the Hazeldean pump station on an interim basis. Staff felt their position was conservative and the right thing to do.

Councillor Feltmate wondered if there was the opportunity to put the holding zone on each individual property as they came through the development process. Mr. Marc indicated that, while that was technically possible to do, staff's approach had been to do a comprehensive holding zone for all the areas that discharge into the Hazeldean Pump Station in order to assure the Ministry of the capacity buffer.

Mr. Wildman confirmed that staff's approach, and the agreement with the ministry, as intended to assure the highest level of protection for residents.

In response to further questions from Councillor Feltmate, Mr. Wildman clarified that the Fernbank Lands had not been included in the Holding Zone. Mr. Marc explained that, due to appeals to Official Plan Amendment (OPA) 77, the OP status of the Fernbank lands had been in question until very recently. He further explained that the Ontario Municipal Board (OMB) had, the previous week, dismissed the main appeal to OPA 77, and thus the OP would come into force. He indicated that staff would now be coming forward with a recommendation to impose a similar holding zone on the Fernbank Lands. He cautioned that Committee should not seek to impose such a holding zone immediately, as it would give rise to questions of notice.

Faith Blacquiere, resident of Glen Cairn, noted that she had been investigating the flooding that had occurred in July 2009, and provided a detailed analysis of the issues related to the Hazeldean Pump Station reliability, capacity and proposed upgrades. She did so by means of a detailed PowerPoint presentation, a copy of which is held on file with the City Clerk. While she was supportive of the holding zone, she had several comments, concerns and recommendations with respect to the staff report. She made the following recommendations to Committee:

- • Implement the Holding Zone for the whole sewershed, including the Fernbank Lands.
- • Do not allocate more capacity until the overflow is in place.
- • Expand the Schedule B project to a Condition and Capacity assessment.
- • Treat the situation as an emergency, as it is an emergency for both residents and the developers
- • Brainstorm possible emergency alternatives and technologies with the Ministry and consider Emergency Standby Portable Pumping Alternatives.
- • Developers should review construction practices.
- • The City should establish a water reduction program for the west end for extreme wet weather
- • The City should review policies which resulted in capacity not meeting growth needs and prevent basement flooding
- • The City should identify and take action on all infrastructure upgrades affecting existing clients where development has been delayed
- • If there is another flood, the consultant should report directly to Council, and start immediately

In conclusion, Ms. Blacquiere suggested the other thing Council should do was pray, as this was what the residents of Glen Cairn must do whenever it rains.

Councillor Feltmate thanked Ms. Blacquiere for all the work she had done over the preceding year, and suggested on the of the reasons the City knew as much as it did was as a result of the documentation Ms. Blacquiere had compiled. In response to questions from the Councillor, Ms. Blacquiere elaborated on the portable pumping and emergency technologies recommended in her submission.

She noted that the 1999 study identified that there had been a submersible pump in the inlet manhole. She suggested if the station had total failure, it would be possible to bring in trucks to pump out the station and provide emergency service. She noted there were technologies that were being approved for some pumping stations to provide temporary solutions in an emergency, and suggested the City needed to investigate such emergency alternatives. Mr. Wildman explained that infrastructure services had done exhaustive research and investigation of factors related to the 2009 flood, and they are underway with the Schedule B upgrade. If measures such as those identified by the delegation were required, they would be implemented. He suggested that before implementing any such measures, the City needed to complete a comprehensive investigation of the causes of the flooding and gain a thorough understanding of how to address them through both mitigation measures and the upgrade of the pump station.

With respect to the existing emergency measures in the event of a pump station failure, Dixon Weir, General Manager of Environmental Services, explained that this and other pump stations had a series of redundancies, and are designed to have emergency back-up power, communication, pumping et cetera to ensure service reliability. Councillor Feltmate wondered if there were short-term solutions to prevent the water backing up into people's homes, as occurred in July 2009. Alain Gonthier, Manager of Asset Management, noted there were a number of measures that have been implemented with the aim of keeping storm water out of the sanitary sewer system. He suggested increasing the pumping capacity to 1225l/s was one of the interim measures while the City undertakes the longer-term works. With respect to the 1999 study, he noted that since then there has been an upgrade to the Hazeldean Pump Station and additional capacity provided.

In response to questions from Councillor Feltmate with respect to the issue of allocating capacity, Mr. Wildman indicated that it was not the usual practice to allocate more than the current capacity to developers. The existing and allocated flows are still below the rated capacity of the pump station. On the issue of one developer selling capacity to another, Mr. Wildman explained that this was not permitted for City-owned pump stations. For private pump stations, while it is difficult to for the City to control sale of capacity; the City does regulate the output from the private pump station, which is not allowed to exceed the rated capacity.

Douglas Kelly, Soloway Wright, spoke on behalf of Cavanagh and 1384341 Ontario Ltd. He noted those property owners had registered plans of subdivision, and had been allocated some capacity. He indicated that they were pleased in recent months with the work staff had done with the Ministry to reach an arrangement that affords those properties some capacity. He expressed concern with respect to the restrictions in the west end on those lots available for development, and supported future efforts of staff to work with the ministry to address that problem.

Mr. Kelly also spoke on behalf of Chenier, owners of a property located in Cypress Gardens Phase Three in Stittsville. He noted, at the time of pre-consultation in 2005, it was proposed the property would be acquired by the City as an Urban Natural Feature; however, the owners have not received an offer from the City to purchase the land, and now intend to proceed with the development of the land, which is designated General Urban Area. He hoped that staff would proceed to process their application in anticipation that the problems with the pump station would be solved.

Councillor Qadri asked staff to comment on the Chenier property and the landowner's request to have the City purchase the property. Mr. Wildman indicated that would require some further discussion.

Alan Cohen, Soloway Wright, spoke in opposition to staff's recommendations. He was accompanied by Sue Murphy, Mattamy Homes. He spoke with respect to how the proposal would impact the Mattamy Fairwinds development. He acknowledged that this was a very serious issue, citing the concerns of the Glen Cairn residents with respect to flooding. He noted there were 800 homes built and occupied in Fairwinds and the remaining 600 units had been draft plan approved since 2006 and 2007. He suggested draft plan approval signified that there was sufficient capacity, noting there was no special condition in the draft plan approval related to the pumping station. He noted the lands were then zoned and were ready for development.

Mr. Cohen suggested the proposed holding zone amounted to a down-zoning of his client's property. He noted that the Kanata West environmental EAs and third party review were not an impediment to the development of his client's lands, and the only impediment would be the proposed holding zone. He expressed concern that the actual capacity was not clear, and indicated that he did not accept the figures provided by staff. Also, he expressed that they had no confidence in the manner in which capacity would subsequently be allocated. Finally, he submitted that his client's lands met the definition of allocation, and questioned why they were not among those being given immediate allocation.

Mr. Cohen suggested the holding zone meant that the City would forego millions of dollars in development charges and taxes, the community could not be completed, and 600 families would be prevented from moving into their new homes. In conclusion, he encouraged Committee to not put the holding designation on his client's lands, but if they did, to make it clear that they were among the lands to go with allocation.

Mr. Wildman noted that the Mattamy lands were part of the broader area subject to the master servicing studies for the area, and the development is currently serviced by a temporary pump station with a limited capacity. While the master studies for the area indicate that there could be a path forward to see those lands

move, this work has yet to be done. As such, staff feels the property should be subject to the holding zone.

Ursula Melinz, Soloway Wright, spoke on behalf of Urbandale. She spoke in opposition to the proposed holding zone, specifically with respect to Urbandale's land located at 310 Stonehaven Drive. She noted the property was well into the development process, with applications submitted as early as 2005 for the last phase of development in the Glen Cairn community. She noted the lands had been through the development review process, had been to the OMB, and Urbandale was now in the position where there were trying to finalize development and seek allocation. She indicated that they would be working with staff seeking part of the allocation. In response to questions from the Chair, Ms. Melinz confirmed that 310 Stonehaven Drive was not on the allocated flow list, while Urbandale's Bridlewood Phase 3 E, located further west on Stonehaven Drive, was on the allocated flow list and was currently under construction. She noted the document marked as Area B of Document 9 to the staff report was a City-owned woodlot formerly belonging to Urbandale.

Emma Blanchard, Borden, Ladner, Gervais, spoke on behalf of 743104 Ontario Inc., owners of the property located at 5924 Hazeldean Road. She spoke in opposition to the staff recommendation with respect to that property. She noted that the property in question had received site plan approval and a site plan agreement was negotiated and executed by the City in March 2010 and registered on title. She indicated that during the Site Plan process there had been no discussion of the possibility of a holding zone, nor any discussion of capacity as being an issue. She noted her client had paid all the required performance securities, park fees and was ready to develop the building. She submitted that, because the property was at an advanced stage of development, it should receive allocation and the holding zone was inappropriate.

Mr. Wildman noted that there were indeed some properties subject to the holding zone that were in an advance planning stage, such as 5924 Hazeldean Road, and these would be prevented from proceeding until the capacity issues were addressed. This development had a condition requiring that the upgrades be in place before proceeding. He surmised that, under the recommended first come first served allocation policy, this would likely be one of the first in line due to the agreements in place.

Ms. Blanchard also spoke on behalf of ECL Developments Ltd. (Sobeys,) owners of 6303 Hazeldean Road/ 1122 and 1130 Carp Road. With respect to this property, she indicated that her clients had been allocated capacity were in agreement with the arrangement that had been discussed with staff. However, she indicated her client's view that, given the allocated capacity reflects the site plan, there would be no need to impose the H on the property.

Chris Leblanc spoke in opposition to the proposed holding zone on the Mattamy's Fairwinds development Phase 5A. He noted that he was a current resident of Fairwinds Phase 1, and in 2009 had purchased a home in Phase 5A. He noted that there had been delays preventing that development from proceeding, and suggested the proposed holding zone would add to the delays that he and other home purchasers were experiencing. He expressed concern that if an H was placed on the property, they would not get the necessary capacity at their interim pump station to allow them to proceed.

Mr. Wildman explained that the temporary pump station referenced by the delegation had met its capacity in terms of commitments, and thus staff was recommending the lands be included in the holding zone.

In response to questions from Councillor Qadri, Mr. Wildman confirmed that the delays to Mattamy Fairwinds Phase 5 were not all related to the issue of pump station capacity. In addition to the issue of the Hazeldean Pump Station, which arose from the July 2009 Flooding Event, the lands in Kanata West that ultimately drained into the Carp River had also been subject to much scrutiny, which contributed to the delays for the property in question.

In response to questions from Councillor Doucet, with respect to storm sewers, and how storm water had found its way into the sanitary system after the major rain event of July 2009, Mr. Wildman noted that some of the storm sewers in question were over 30 years old and the design standards of the day were different. The storm sewers put in place since the new City standards have been in place have performed well and performed as intended to limit flooding. Mr. Wildman suggested that this was dependant on the area in question. He explained that as development moved into flatter lands where geotechnical restrictions do not allow for grade increases, pumping stations could be necessary. He agreed that caution was always in order when designing these systems and suggested recent systems were performing well as a result of that caution.

In response to questions from Councillor Monette with respect to what alternative solution there was instead of holding zones, Mr. Wildman suggested the alternative would be to do a full Schedule B EA, and cautioned that delays could result if that EA were to be subject to any Part 2 Order. As such, staff felt the proposed Schedule A+ EA and holding zone is the fastest path forward, in the best interests of the public, to ensure a buffer above the peak flows that have been experienced. Mr. Marc further explained that when there is a capacity issue with respect to infrastructure, the only tool the municipality has is to impose the holding zone in order to allow the necessary improvements to infrastructure to be made so that the development can proceed. He suggested the recommended holding zone would, in effect, allow the municipality to deal with the issue on a case by case basis.

Councillor Hunter suggested that there were other reasons for the 2009 Glen Cairn flooding, aside from the Hazeldean pumping station, given that other areas

served by the same pumping station did not have sanitary sewer problems. These reasons could include pipe capacity and problems related to the standards under which the community was developed. He suggested it was wrong to make developers that are building communities to appropriate standards, and homeowners, wait in line because of a problem that was probably caused by the Ministry of Housing decades ago.

The Councillor noted the City had for the past 20 years been adding communities to the various pumping stations and there had always been plenty of capacity. He suggested putting a hold on development was a kneejerk reaction to the 2009 storm, which affects developers and the area's potential homeowners. He noted there was sufficient capacity except during a big storm, and suggested that for the storm situation the solution was to stop the storm water infiltration, not stop the development.

Councillor Feltmate spoke to the flooding that had occurred in Glen Cairn in July 2009. She acknowledged that there were a number of reasons it had occurred, but emphasized that the design of the pump station was one of those reasons. She noted that because the capacity was insufficient for the section going to Glen Cairn in a storm, there was nowhere for it to overflow other than residents' basements. She indicated her support for the holding zone, and maintained that new homes should not expect to feed into the system, when existing homeowners have to pay the price. She suggested staff was doing the best they could to protect the current residents, while allowing the process with the Ministry to move forward more quickly with the upgrades to provide the required capacity, and begin allocating on a case by case basis. She further suggested that as infrastructure ages and demonstrates that it does not meet capacity the City needs to move forward with getting it fixed sooner and not delaying it to avoid tax increases. In conclusion, she encouraged Committee and Council to vote in favour of the holding zone.

Councillor Qadri spoke in support of the holding zone, suggesting it was a thoughtful pause in the development of the west end communities. He acknowledged that there were various issues related to water flow in the area in question, and indicated that he felt sympathy for the homebuyers who would have to wait to move in. However, he felt this was an opportunity to correct some of the problems for the benefit of those future residents.

With respect to the flooding of July 2009, he suggested the Carp River third party review was one piece of the puzzle, this was another, and the full picture would come forward when the report came forward from staff examining what exactly happened in that flood and what corrective measures would be taken going forward.

With respect to the developers, he noted that this report would not stop the planning process, and further noted that many of the development were not at the

stage where they were even ready for building permits. Referencing the ECL proposal, which was already worked through with staff, he noted staff was working to fairly allocate capacity based on phases of that development. He praised staff for standing up and saying we need to review the infrastructure before proceeding. In conclusion, he asked Committee to support the staff recommendations.

Committee then approved the report recommendations, as presented.

That the Planning and Environment Committee recommend Council approve:

- 1. 1. An amendment to the Zoning By-law 2008-250 to change the zoning of properties within the Hazeldean Pump Station Sewershed such that a holding zone (h) is added to the existing zones, as illustrated in Documents 5 to 13 and detailed in Document 14.**
- 2. 2. That staff proceed with application for Certificate of Approval in accordance with the 1999 Region of Ottawa-Carleton Hazeldean Sewage Pumping Station Capacity Expansion Schedule B – Class Environmental Assessment to increase the capacity of the HPS to 1077 l/s.**
- 3. 3. That, consistent with existing delegated authority, the General Manager, Planning and Growth Management be directed to list by-laws providing for the lifting of the ‘h’ on a case by case basis upon confirmation that capacity is available.**
- 4. 4. That the General Manager, Planning and Growth Management be given authorization to waive the planning fees, identified in the Planning Fee By-law (2010-110), for a ‘Lifting Holding By-law’ application related to the subject ‘h’.**
- 5. 5. That the General Manager, Planning and Growth Management be directed to list a by-law for the lifting of the ‘h’ related to sanitary sewer capacity off of all properties once the Certificate of Approval for the Schedule A+ project to bring capacity to 1225 l/s has been issued and the Schedule B Class Environmental Assessment for the project to bring capacity to 1400 l/s is complete.**

CARRIED

DIRECTION TO STAFF:

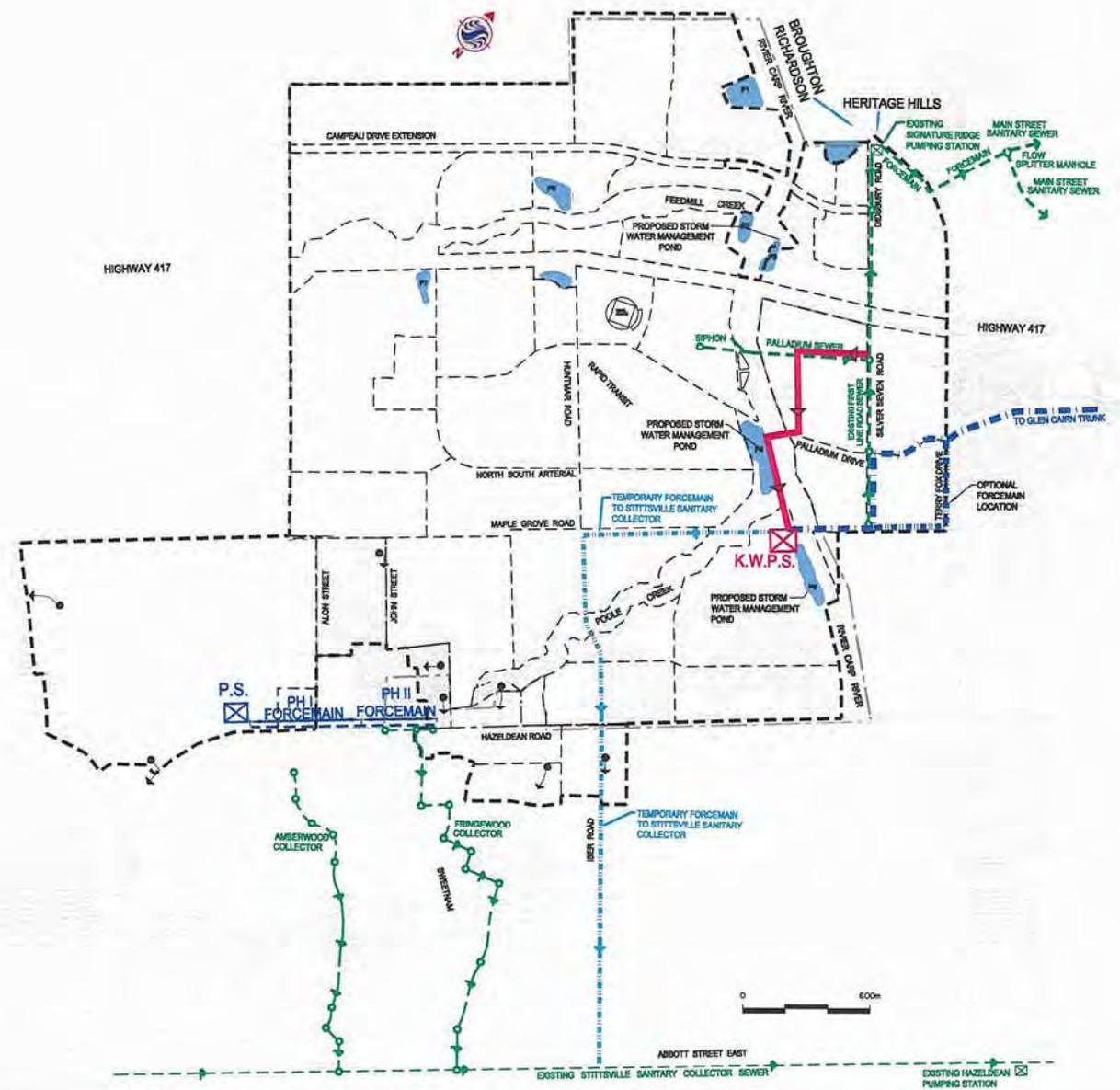
That the results of staff’s system-wide sanitary study come back to Planning and Environment Committee for information.

Attachment 14

Fig 4.1.6a of 2006 MSS

Preferred wastewater servicing strategy

INTERNAL SANITARY SERVICING ALTERNATIVE IIIA (PREFERRED OPTION)



- Ultimate Major Drainage Limit
- Proposed Trunk Sewer
- - - Forcemain
- - - Temporary Forcemain
- - - Existing Trunk Sewers
- Existing Pumping Station and Forcemain (To be Decommissioned)
- ⊠ Pump Station



CCCL/IBI
SPECIAL CONSULTANTS

MAY 2006

FIG. 4.1-6A

Attachment 15

Section A4.1.1 and A4.2.2

of 2000 Municipal Class EA

Addenda Schedule B & C undertakings

- description / inventory of the environment
- the alternative solutions considered and the evaluation process followed to select the preferred solution
- follow-up commitments, including any monitoring necessary
- the public consultation program employed and how concerns raised have been addressed.

The Project File shall contain a complete record of all activities associated with the planning of the project and shall include:

- correspondence
- copies of notices, letters, bulletins relating to public consultation
- memoranda to file explaining the proponent's rationale in developing stages of the project
- copies of reports prepared by consultants and others.

Proponents may wish to include in the Project File, a short summary listing key activities and the principal decisions/conclusions. Copies of such a summary could readily be made available to review agencies or other interested persons/parties.

A.4.1.1 Revisions to Schedule B Projects

It may be necessary to revise Schedule B projects due to the environmental implications of changes to the project or due to a delay in implementation.

Significant modifications to Schedule B projects, as presented to the public during the screening process and as set out in the Notice of Completion shall be reviewed by the proponent. Similarly, if the period of time from filing of the Notice of Completion to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process to ensure that the project and the mitigating measures are still valid given the current planning context.

In either event, the reviews shall be documented in the Project File and the proponent shall issue a Revised Notice of Completion to all potentially affected members of the public and review agencies. A period of 30 calendar days shall be provided for review and response by the public. The Notice shall include the public's right to request a Part II Order within the 30-day review period (see Section A.2.8). If no Part II Order request is received by the Minister, the proponent is free to proceed with implementation and construction. Where implementation of a project has already commenced, those portions of the project which are the subject of the revision, or have the potential to be directly affected by the proposed change, shall cease

and shall not be reactivated until the termination of the review period.

A.4.2 SCHEDULE C – ENVIRONMENTAL STUDY REPORT

Environmental Study Report (ESR) is prepared for Schedule C projects.

An Environmental Study Report (ESR) will be prepared for each project which proceeds through the Schedule C planning process described in this Class EA. The ESR will be prepared when the preferred design has been selected and design work has progressed to the point where the details of any environmental protective measures to be incorporated in the construction package have been finalized. The ESR will be placed on the public record for a period of at least 30 calendar days and will be available for inspection by the public or by other interested parties. In the case where a request for a Part II Order has been submitted to the Minister, the ESR shall be submitted to the MOE Regional EA Co-ordinator and to the EAA Branch immediately upon the proponent becoming aware of the request.

A notice indicating completion of the ESR and its filing on the public record will be issued to the public and to all parties who have been previously contacted and who have indicated the desire to stay involved in the planning of the undertaking. The notice will indicate that the project may proceed to construction after the 30 calendar day review period following the placing of the ESR on the public record, provided no request for a Part II Order has been made to the Minister.

A.4.2.1 Format and Content

The amount of information in the ESR will reflect the level of complexity of the project and the planning process.

In general, the ESR will provide a complete account of the planning process followed for the project. The ESR should include only what is necessary to cover fully the matters considered during the planning process. A project which is straight forward with relatively little interest with the public and of a noncontroversial nature, would be covered in an ESR which could be relatively brief. A more complicated, controversial project which has involved a number of detailed studies and data collection and has raised special interest or concern with the public would demand a more comprehensive, lengthy, and more detailed ESR. This would include details of all studies undertaken or data collected, the results and conclusions of all matters considered, a discussion of all issues raised by the public with an evaluation and response to each, and all other matters covered in the planning process.

Whatever format the ESR takes, the proponent shall ensure that the language and terminology used, and the explanations given of technical matters considered, are readily understood by a reasonable lay person.

Suggested outline for ESR.

The outline for the preparation of the ESR which follows is a suggested format only. The ESR does not necessarily have to follow

Filing of an Addendum.

A.4.2.2 Revisions and Addenda to Environmental Study Report

Change In Project or Environment

Due to unforeseen circumstances, it may not be feasible to implement the project in the manner outlined in the ESR. Any significant modification to the project or change in the environmental setting for the project which occurs after the filing of the ESR shall be reviewed by the proponent and an addendum to the ESR shall be written. The addendum shall describe the circumstances necessitating the change, the environmental implications of the change, and what, if anything can and will be done to mitigate any negative environmental impacts. The addendum shall be filed with the ESR and Notice of Filing of Addendum (see Sample Notice, Appendix 6) shall be given immediately to all potentially affected members of the public and review agencies as well as those who were notified in the preparation of the original ESR.

A period of 30 calendar days following the issue of the Notice of Filing of Addendum shall be allowed for review and response by affected parties. The Notice shall include the public's right to request a Part II Order within the 30-day review period (see Section A.2.8). If no request is received by the Minister, the proponent is free to proceed with implementation and construction. During the 30-day addendum review period, no work shall be undertaken that will adversely affect the matter under review. Furthermore, where implementation of a project has already commenced, those portions of the project which are the subject of the addendum, or have the potential to be directly affected by the proposed change, shall cease and shall not be reactivated until the termination of the review period.

Lapse of time

A time lapse may occur between the filing of the ESR and the implementation of the project. In such cases, the proposed project and the environmental mitigation measures proposed may no longer be valid.

Review the project where a 5 year time period has occurred between filing of the ESR and commencement of construction.

If the period of time from filing of the Notice of Completion of ESR in the public record to the proposed commencement of construction for the project exceeds five (5) years, the proponent shall review the planning and design process and the current environmental setting to ensure that the project and the mitigation measures are still valid

given the current planning context. The review shall be recorded in an addendum to the ESR which shall be placed on the public record.

Notice of Filing of Addendum shall be placed on the public record with the ESR and shall be given to the public and to the review agencies; a period of 30 calendar days shall be provided for review and response. The Notice shall include the public's right to request a Part II Order (see Section A.2.8) during the 30-day addendum review period. If no request is received, the proponent is free to proceed with implementation and construction.

Attachment 16

Section 9 of 2006 MSS - Conclusions and Recommendations

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Kanata West Master Servicing Study serves as an update to the 2002 Concept Plan prepared by FoTenn Consulting. The objective of this Study is to provide a macro level servicing plan for the KWCP, identifying an internal servicing scheme which takes into account changes in land uses and development densities. This study has been completed in accordance with the recommendations of the following reports and will be supported by the Class Environmental Assessments:

- Kanata West Transportation Master Plan Report – Delcan
- Carp River, Poole Creek and Feedmill Creek Restoration Class Environmental Screening Report – Totten Sims Hubicki with Parish Geomorphics, Stantec Consulting Ltd. and Ron Huizer

The principal recommendations of the updated servicing Study are discussed below.

9.1 Stormwater Servicing

The preferred stormwater servicing plan for the KWCP is for the construction of seven end-of-pipe wet pond facilities, as indicated on Figure 5.3. Preferred trunk sewer sizes and locations are provided on Drawing ST-MN. The preferred cover requirement of 2.0 m is not met in all locations, specifically where the grade falls towards the Creeks and Carp River. To provide a gravity connection from the foundation drains to the storm sewer, a grade raise in combination with more exposed foundation or a modified building structure (i.e. walkouts, split level homes) may be needed.

To service the area adjacent to the Carp River, large diameter sewers laid at flat grades are required. The proposed 100 year water level in ponds will result in partially submerged inlets in all ponds, resulting in backwater impacts on the storm sewer design. The submerged inlet sewers and associated structures are required to have a sluice gate to facilitate maintenance to the satisfaction of the City of Ottawa's stormwater unit. The hydraulic grade line analysis contained in Appendix 3.3.6 takes into account these boundary conditions.

9.1.2 Phasing

In general, storm sewers and stormwater management ponds should be constructed as development proceeds. Stormwater management facilities will be required in the first phase of development with anticipated that in the predicted Phase 1 development, Ponds P1, P3, P4 and P5 will be constructed in a given area. It is tied with trunk storm sewers installed to support the development area as depicted on Figure 7.1.

9.1.3 Costing

The cost of the proposed storm ponds depicted on Figure 5.3 is estimated to be \$10.9 million dollars.

The total length of trunk storm sewers (1,500mm and larger) is estimated to be 9,420 metres with an associated cost of approximately \$21.2 million dollars.

These estimates are considered to be Class "D" estimates of the construction costs and do not include an allowance for rock excavation.

9.2 Sanitary Servicing

The preferred wastewater servicing plan for the Kanata West area provides a flexible cost effective servicing scheme allowing for phased construction of the new wastewater infrastructure. This is achieved by making use of residual capacity and maximizing the potential existing infrastructure. The ultimate servicing scenario increases the efficiency of the City's overall wastewater system by minimizing the number of new pumping stations and facilitating the ultimate decommissioning of up to eight existing public and private pumping stations and one siphon.

To effectively implement this servicing plan, it will be necessary to provide regular flow monitoring at the Stittsville Collector Sewer, the Hazeldean pumping station, and the Signature Ridge Pumping station. This will ensure that the ultimate works are designed and constructed in time to allow a continuous building program throughout the build out of the KWCP. To service the area adjacent to the Carp River, large diameter sewers laid at flat grades were required.

9.2.1 Phasing

In general, development will require the upgrade to the Signature Ridge Pumping station and the construction of pumping station PS2, located in the vicinity of Maple Grove Drive and the Carp River, with a temporary forcemain outlet to the Stittsville collector. Sanitary sewers tributary to these outlets will be installed as development proceeds.

9.2.2 Costing

The opinion of probable costs for the two pumping stations and associated forcemains is estimated to be \$13.5 million dollars.

The total length of trunk sanitary sewer is approximately 7,780m with an associated cost of approximately \$5.0 million dollars.

These estimates are considered to be Class D estimates of construction costs and do not include an allowance for rock excavation.

9.3 Water Servicing

9.3.1 Major Watermains

A 610mm diameter watermain is recommended for construction through the KWCP area. This sizing considers peak daily demands, fire flow requirements and reliability needs. This watermain will provide a strong loop through the proposed development area, and most

importantly, will provide appropriate redundancy for the major transmissions on Hazeldean Road. This 610mm watermain will provide sufficient conveyance capacity between Kanata and Stittsville to allow flexibility in operating Pressure Zone 3W by allowing pump station discharge pressures to be reduced while maintaining adequate pressures in the Stittsville area.

A 406mm diameter watermain at the south end of Huntmar and looped 305mm diameter watermains, as shown in the figure, will be needed in different parts of the Kanata West Concept Plan area to provide adequate domestic and fire flow demands. Other looped pipes will be required within individual growth areas. It is expected that these pipes will range in size from 152mm to 305mm in diameter.

9.3.2 Phasing

In general, watermains within the KWCP should be constructed as development proceeds. Looped mains need to be considered as development increases to avoid single watermains feeding areas with more than approximately 200 units. To provide a loop for the 610mm watermain, in accordance with the City of Ottawa Guidelines, the Highway 417 crossing will be needed soon after development of the lands north of the highway. Development north of the highway will require the 610mm watermain along Campeau Drive to Huntmar and then south along Huntmar across Highway 417 to the existing watermains in the area of the Corel Centre, after construction of approximately 200 residential units (or equivalent). Development south of the highway will require the construction of the 406mm watermain on Huntmar Road extending either to the north to Palladium Drive or to the east to Silver Seven Road.

9.3.3 Costing

The opinion of probable capital cost for the 4900m of 610mm diameter watermain shown in **Drawing WM-1** is estimated at \$6.3 million (including an allowance of \$200,000 for the Highway 417 crossing and rock removal). The total length of 406mm diameter watermain shown on **Drawing WM-1** is 1250m, which is estimated to cost \$0.6 million. The total length of 305mm diameter watermain shown on **Drawing WM-1** is 8000m, which is estimated to cost \$3.0 million. These estimates are considered to be Class "D" estimates of construction costs do not include an allowance for rock excavation.

All of which is respectfully submitted;

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