



REGION OF YORK
CLERK'S OFFICE

FILE No. -

P42

July 8, 2010



Mr. Denis Kelly
Regional Clerk
The Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1

RE: INFLOW AND INFILTRATION
REDUCTION PILOT PROJECT (5.5)

Dear Mr. Kelly:

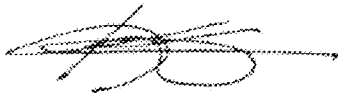
This will confirm that at a meeting held on June 22, 2010, Council of the Town of Markham adopted the following resolution:

- "1) That the report entitled "Inflow and Infiltration Reduction Pilot Project", be received; and,
- 2) That Staff be authorized to continue participating in the Regional Inflow and Infiltration Reduction Task Force with the Region of York and other regional municipalities and report back on its recommendations and the requirements of the Town Council resolution to satisfy the conditions of releasing the 2013 servicing allocation; and,
- 3) That Staff report back as to the outcome of the Inflow and Infiltration Reduction pilot project; and,
- 4) That the Mayor and the Clerk be authorized to execute agreements to the satisfaction of the Chief Administrative Officer and Town Solicitor with Upper Unionville Inc. and the Region for an Inflow and Infiltration Reduction Pilot Project based on the principles identified in this report; and,
- 5) That the Region of York be requested to participate in the pilot project; and,
- 6) That staff arrange a presentation at the September 14, 2010 Development Services Committee meeting and that Region of York staff be invited to provide a presentation; and,

- 7) That, if required, a Working Group be established; and further,
- 8) That Staff be authorized and directed to do all things necessary to give effect to this resolution.

If you have any questions, please contact Alan Brown, Director of Engineering, at 905-477-7000 ext. 7507.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Kimberley Kitteringham', written over a horizontal line.

Kimberley Kitteringham
Town Clerk

Report to: Development Services Committee

Report Date: June 22, 2010

SUBJECT: Inflow and Infiltration Reduction Pilot Project**PREPARED BY:** Alan Brown, Director of Engineering, Ext. 7507
Allen Wu, Senior Development Engineer, Ext. 2230

RECOMMENDATION:

- 1) That the report entitled "Inflow and Infiltration Reduction Pilot Project", be received;
- 2) And that Staff be authorized to continue participating in the Regional Inflow and Infiltration Reduction Task Force with the Region of York and other regional municipalities and report back on its recommendations and the requirements of the Town Council resolution to satisfy the conditions of releasing the 2013 servicing allocation;
- 3) And that Staff report back as to the outcome of the Inflow and Infiltration Reduction pilot project;
- 4) And that the Mayor and the Clerk be authorized to execute agreements to the satisfaction of the Chief Administrative Officer and Town Solicitor with Upper Unionville Inc. and the Region for an Inflow and Infiltration Reduction Pilot Project based on the principles identified in this report;
- 5) And that the Region of York be requested to participate in the pilot project;
- 6) And that Staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

The purpose of the report is to

- Obtain Council's approval for staff to continue participating in the Inflow and Infiltration (I/I) Reduction Task Force with the Region and other area municipalities,
- Seek Council's approval to undertake an I/I reduction pilot project located north of Highway 7 between McCowan Road and Markham Road area (Attachment "A") and any additional areas deemed necessary by the Town and Region of York in order to achieve the net I/I reduction benefit to the overall sanitary sewer system for servicing allocation for Upper Unionville Inc. and
- Seek Council's approval to execute the necessary agreements with the Region of York and Upper Unionville Inc. with respect to the I/I reduction pilot project.

BACKGROUND:

In anticipation of the forecasted growth within York Region, an Individual Environmental Assessment (IEA) for the Southeast Collector (SEC) sanitary trunk sewer to expand the regional sewer system was initiated in 2005. The SEC trunk sewer is an important and necessary infrastructure to serve the future growth in the Region and the IEA was approved by the Ministry of the Environment (MOE) on March 31, 2010. However, a series of conditions were imposed by the MOE as part of the IEA approval which included the requirements for the Region and the area municipalities to develop solutions to actively reduce the inflow and infiltration in both the regional and municipal sanitary systems. The Region has requested the local municipalities, as part of the assignment of the 2013 servicing allocation, to partner with the Region to:

- i) Actively participate in a Regional I/I Task Force,
- ii) Continue to seek out the sources of I/I,
- iii) Adopt standards and guidelines to reduce I/I in new developments and within existing systems, and
- iv) Develop funding and cost sharing principles to address future remediation projects.

Inflow and infiltration is water that enters the sanitary sewer system during rain and snowmelt events as well as seepage from groundwater. Sources of inflow and infiltration could include inflow through manhole covers and downspouts, storm cross connections to the sanitary sewer and infiltration through cracks and faulty joints in the pipes with groundwater seepage. In general, the inflow and infiltration in the sanitary system is less when they are newly constructed. However, as the sewage infrastructure ages and the system deteriorates, the rate of inflow and infiltration to the system increases. The additional flow in I/I takes away the capacity of the system to accommodate development growth and increases the risk of sanitary sewer surcharging. There are areas in Markham as shown on the attached map (Attachment "A") which have high and moderate rates of inflow and infiltration. The sewer systems within these areas are generally older than 30 years.

Regional I/I Task Force

The Region has established the I/I Task Force with participation from all of the area municipalities within the Region. The creation of the I/I Task Force is a condition of approval of the Southeast Collector IEA. The objective of the Task Force is to develop a strategy and program to reduce the I/I in the sanitary system over the next 20 years.

The I/I Task Force comprises an Advisory Group which will establish an action plan with inputs from the five subgroups that were created to develop specific policies related to:

- Strategy Development,
- Communication and Advocacy,
- Funding,
- Standards / Monitoring / Implementation, and
- Audit / Measure / Continuous Improvement.

The MOE has mandated that the I/I Reduction Strategy including the I/I reduction priorities, targets, timelines, tactics, and initiatives, and associated costs be completed and submitted to the MOE for review by March 2011.

The Director of Engineering and Director of Operations along with two other staff are actively participating in the I/I Reduction Task Force Advisory Group and the five subgroups. Staff will report back to Council as to the recommendations of the I/I Reduction Task Force.

Town Initiated I/I Reduction

The Town has developed programs in a pilot area in Thornhill to reduce the inflow and infiltration in the sanitary system. The Waterworks Department has initiated the following programs that are either completed or will start subject to the funding availability.

- Downspout Disconnection Program (initiated through "Every Downspout Counts" program)
- Manhole Lids Sealing (completed)
- Relining the Sanitary Sewers and Lateral Connections (to be initiated)

In addition to the Thornhill pilot I/I reduction program, Waterworks is partnering with Region of York in an overall regional I/I reduction study. Between 2008/2009, Region had conducted flow monitoring in 29 catchment areas within Markham. This resulted in identification of five relatively high I/I areas where Waterworks initiated preliminary field inspection activities as described below and completed in 2009:

- 1) Two areas were smoke tested, manhole inspected, and CCTV mainline inspection conducted, and
- 2) Three areas were smoke tested, manhole inspected, and CCTV mainline and lateral inspection conducted.

The Region's consultant (AECOM) is currently doing the data analysis and condition rating of the sewer infrastructure. The analysis is planned to be completed in June 2010. Appropriate rehabilitation measures will be proposed according to the sewer condition.

OPTIONS/ DISCUSSION:

I/I Reduction Pilot Project

Upper Unionville Inc. (the land development group which has acquired the Beckett Farm at the northeast corner of Kennedy Road and 16th Avenue) has expressed a strong desire to undertake a pilot project in location(s) within the Town to reduce I/I in high priority areas. Upper Unionville Inc. will agree to fund this pilot project completely, which includes setting up additional monitoring equipment and ongoing system monitoring, conducting tests such as the smoke test and dye test, and completing the required remedial works to reduce the inflow and infiltration. Upon approval of this pilot project by the Town and the Region, Upper Unionville Inc. will commence with the monitoring and testing program to determine the extent of the work and cost to reduce I/I in the pilot project area. In return for taking on this project, Upper Unionville Inc. has requested that a portion (50%-75%) of the I/I flow reduction be applied to their draft plan of subdivision (total 1632 units) as servicing allocation above and beyond Markham's current allocation from the Region.

Project Principles

The principles in developing this pilot project will include,

- Upper Unionville Inc. will develop a work plan to be approved by the Town and the Region of York,
- Upper Unionville Inc. to enter into a agreement(s) with the Town and the Region regarding the pilot project, including financial guarantees,
- Upper Unionville Inc. will assume full cost of implementing this pilot project, including retaining consultants and contractors to develop the work plans and complete the required remedial works as approved by the Town,
- Upper Unionville Inc. may complete more than one high priority area, if necessary, to achieve sufficient I/I reduction for its development with approximately 1632 units,
- Upper Unionville Inc. will be assigned with servicing allocation equivalent to 50%-75% of the reduced flow achieved through the I/I pilot project. The final servicing allocation commitment will be finalized by the Town and the Region,
- Region of York agrees to assign additional servicing allocation to the Town in order for the Town to re-assign the required units to Upper Unionville,
- Upper Unionville Inc. shall assume full risk if approval cannot be obtained from the Region for assignment of additional servicing allocation beyond what has already been assigned for 2011, 2012, and 2013. No reimbursement of funds shall be granted by the Town or the Region for any works already completed by Upper Unionville Inc.,
- Upper Unionville Inc. to indemnify the Region and Town for any work related to the I/I reduction program, and for the lack of implementation of any pilot project, and
- Provide adequate liability insurance to the satisfaction of the Town and the Region.

Staff Recommendations

Staff has reviewed the proposed pilot project and is of the opinion that the project will provide the following benefits,

- Improve the level of service in the local systems by reducing I/I from the pilot project,
- Improve the overall capacity of the YDSS from the I/I reduction in the pilot project areas,
- Reduce environmental impact associated with cross connections,
- Create additional allocation for new development,
- Potential expansion of the pilot project area to other high priority areas,
- Expedite the I/I reduction in the Town system at developer costs,
- Create a more efficient sanitary sewer system,
- Satisfy MOE approval condition for the Southeast Collector IEA,
- Reduce volume for the sewage treatment plant.

FINANCIAL CONSIDERATIONS AND TEMPLATE:

There are no financial implications to the Town of Markham as all costs will be funded by Upper Unionville Inc.

HUMAN RESOURCES CONSIDERATIONS

Not Applicable

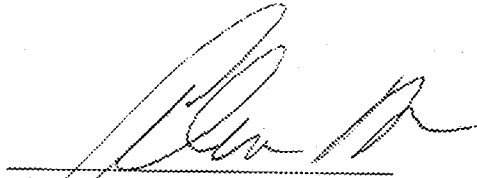
ALIGNMENT WITH STRATEGIC PRIORITIES:

The I/I reduction will reduce the flow in the system during the wet weather flow events which in turn will reduce the risk of sewer surcharging and impact to residents and the environment.

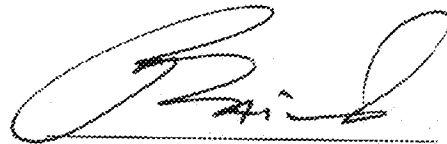
BUSINESS UNITS CONSULTED AND AFFECTED:

The Legal and Operations Departments have reviewed and provided comments to this report.

RECOMMENDED BY:



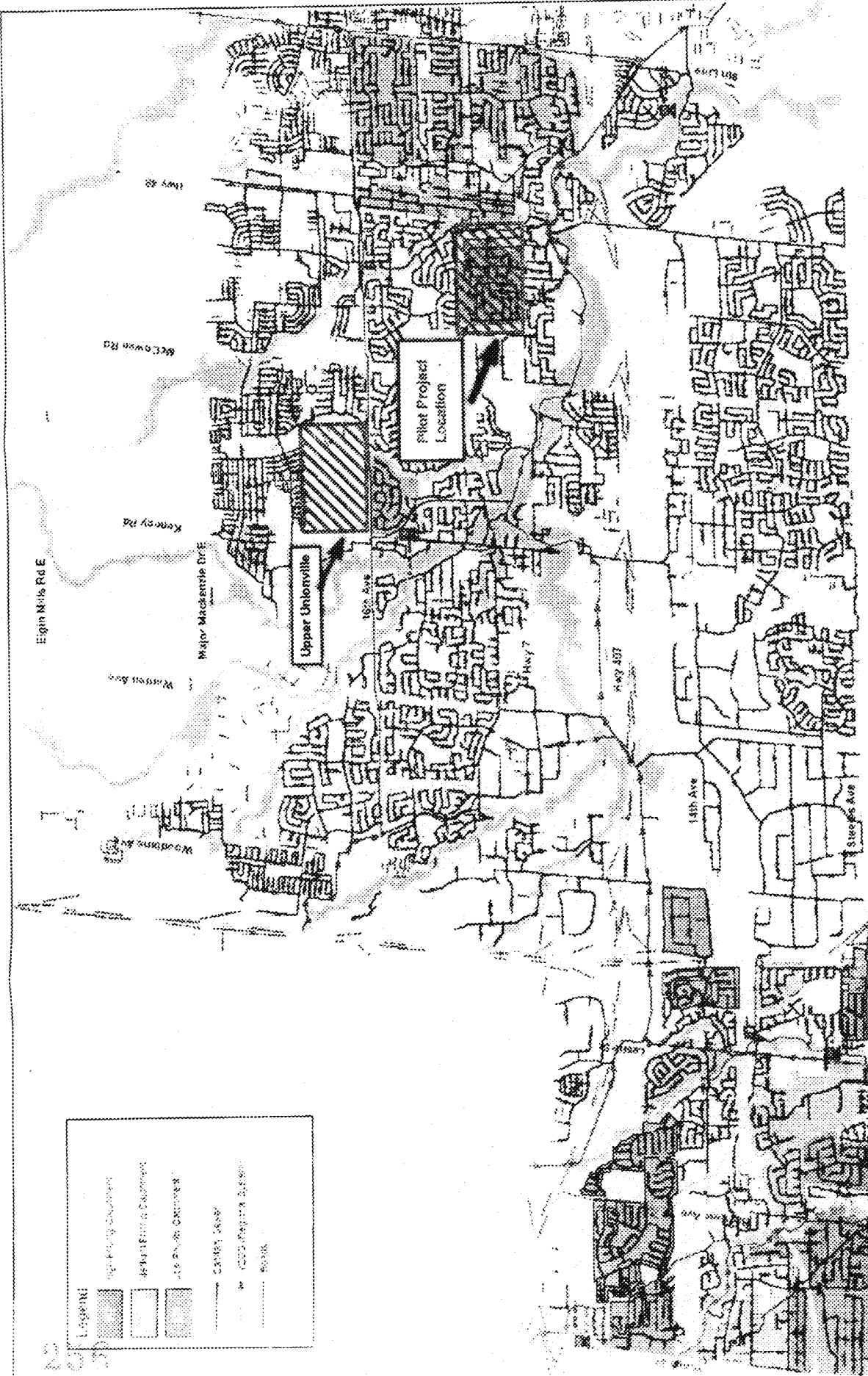
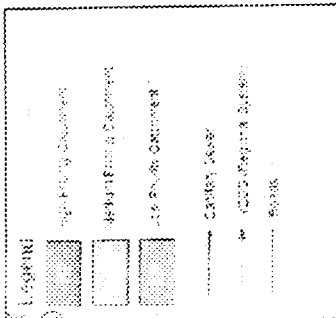
Alan Brown, C.E.T.
Director, Engineering



Jim Baird, M.C.I.P., R.P.P.
Commissioner, Development Services

ATTACHMENTS:

Attachment A Inflow and Infiltration and Pilot Project Location Map



Attachment A Inflow and Infiltration / Pilot Project Location Map

Source: York Region Inflow & Infiltration Reduction Program - Feb 2010

1:1 RATES

Drawn By: J.H. Date: May 27, 2010

