



Report to: General Committee

Date Report Authored: Oct 22, 2012

SUBJECT: Former Sabiston Landfill Site – Status Update
PREPARED BY: Robert Penner, ext. 4550
Prathapan Kumar, ext. 2989

RECOMMENDATION:

- 1) THAT the report entitled “Former Sabiston Landfill Site – Status Update” be received;
- 2) AND THAT staff continue to monitor the gas probes at the boundary between the landfill Site and residential properties at a frequency every two months as per the approved Ministry of Environment (MOE) Operating and Procedures and Maintenance Manual for the Site;
- 3) AND THAT staff prepare appropriate signage to be installed within the Site identifying it as the “German Mills Meadow and Natural Habitat” to assist in the education and management of public use of these lands as outlined in the report;
- 4) AND THAT the funding available in account 750-101-5399-7028 ‘Settlers Park Landfill Site Management’ of \$367,776 be re-allocated to fund the additional rehabilitation works identified in the report;
- 5) AND THAT Staff be authorized and directed to do all things necessary to give effect to this resolution.

EXECUTIVE SUMMARY:

N/A

PURPOSE:

The purpose of this report is to provide Council with an update on the Former Sabiston Landfill Site management and to respond to Council’s June 26, 2012 resolutions on Former Sabiston Landfill.

BACKGROUND:

Site Location

The Former Sabiston Landfill Site is located in German Mills Settlers Park located south of John St., west of Don Mills Road and north of the Leslie Street extension at Steeles Avenue (Figure 1).

Council Motion dated June 26, 2012

On June 26, 2012 Council passed a motion on the Former Sabiston Landfill. The recommendations and discussions are included in the Options/Discussion section of this report.

OPTIONS/ DISCUSSION:

The June 26, 2012 Council Resolutions are listed and discussed below:

- (1) *That the existing methane gas collection system remain in place until confirmation is received that methane gas has been eliminated as per Ministry of Environment regulations;*

Staff will continue to manage the Site in accordance with the requirements proscribed by the Ministry of the Environment until the methane gas is fully eliminated.

- (2) *That there is no interest by the Town of Markham to host an Aerobic Bioreactor Landfill Technology pilot project and declare the matter is no longer under consideration;*

As a result of the public response at a Public Information meeting held on March 19, 2012 and the public depositions at the Council meeting of June 26, 2012, this resolution has been adopted by Council. No investigations into the use of aerobic technology at the Sabiston Landfill will be initiated. Management of the Site will continue under current procedures and methodology (anaerobic).

- (3) *That the following paragraph be referred to staff for consultation with the Ministry of Environment and for a subsequent report back to the General Committee in Fall 2012:*

That the subject lands be formally brought into the Markham park system and designated as the 'German Mills Meadow and Natural Habitat' as recognition of the unique and special character of this Site;

The current City's Draft New Official Plan (September 2012) identifies the Sabiston Landfill Site as 'Greenway System'. The 'Greenway' is the designation used for the City's natural heritage areas and identifies lands not available for development. Public parks and recreational uses, which are sensitive to the ecological integrity of the lands, are permitted. The technical requirements to manage the site will be addressed in Part III of the Official Plan which will provide site-specific policies for lands in Markham.

The Ministry of the Environment (MOE) currently recognizes this Site as a former landfill site which produces methane gas, and for this reason the site was identified a "Study Area" in the current approved Official Plan. A gas collection system is currently operational to safely collect and dispose methane gas preventing migration of methane gas onto abutting residential properties. MOE has confirmed that changing the designation of the former Sabiston landfill property to "Greenway System" does not require MOE approval.

Council may request that staff erect signage within German Mills Settlers Park describing it as the "German Mills Meadow and Natural Habitat." Such signage shall include wording, as staff may deem appropriate, to assist in the education of visitors and the management of public use of these lands, including its history identifying it as a former landfill and warning of potential hazards. Staff will continue to manage the park at the current maintenance level and the pathways will remain open to the public.

- (4) *That the following paragraph be referred to staff for a report to the General Committee in Fall 2012 on an implementation plan and the impact of same on wildlife and vegetation:*

That a redundancy system be established as a safety measure against any failure to the existing maintenance system, including the installation of a generator at the pump house.

Remote telemetry instrumentation has been installed at the pump house. An alert will be sent in case the pump/blower malfunctions or a power outage occurs at the Site. A backup

generator at the pump house will be installed in 2013. The purchase of a spare motor and pump, as a backup in order to reduce the down time should the existing equipment falter or fail, is also being investigated.

Repairs and upgrades to the existing gas collection system and wells are ongoing. This will improve the performance of the gas collection system and its ability to restrict the flow of methane towards the bordering properties. Also, noise reduction measures have been carried out at the pump house and the noise output is now below the compliance level of 45dBA.

Staff will ensure that appropriate mitigation measures will be followed for any future work at the Site to minimize the potential disruption to wildlife and vegetation.

- (5) *That the frequency of monitor readings be increased from every two months to once per month as an additional safety measure and staff continue to monitor readings as per Ministry of Environment regulations and a report to General Committee be provided annually;*

The current Certificate of Approval (Air) requires the City to monitor and control the landfill gas from the Site as described in the Ministry of the Environment (MOE) approved Operating Procedures and Maintenance Manual (O&M Manual) dated March 2010. The O&M Manual stipulates that the gas probes at the boundary of the Site be monitored every two months and if any exceedance is observed above 50% of lower explosive limit (LEL) for methane gas (i.e. greater than 2.5% by volume) additional monitoring to be carried out and appropriate actions need to be taken to prevent landfill gas migration onto adjacent properties.

The MOE completed an inspection of the landfill Site on January 6, 2012 and were satisfied with the current monitoring program.

Accordingly, staff recommends continuing the monitoring program at a frequency of once every two months per the approved O&M manual. If exceedance occurs, monitoring frequency will be increased and appropriate action will be taken until methane levels are reduced below the MOE compliance level.

- (6) *That the following paragraph be referred to staff for a report to the General Committee in Fall, 2012 on an implementation plan and the impact of same on wildlife and vegetation:*

That a Leachate Collection System be installed to intercept discharge to German Mills Creek and protect the Creek from contamination and where possible, this System should be installed and operated in a manner that minimizes disruption to existing wildlife and vegetation.

The City's consultant, AMEC Environment and Infrastructure completed a "Leachate Management Feasibility Study" and their conclusions are:

- 1) No adverse impacts from the leachate-impacted groundwater plume have been observed in German Mills Creek.
- 2) The inferred groundwater plume extends from the Waste Disposal Site and from the East Fill area to the south. The most concentrated portion of the plume appears to extend

south of the East Fill Area. Concentrations in the groundwater of all health related parameters do not exceed the related Ontario Drinking Water Standard (ODWS).

- 3) Groundwater quality has not been determined in the deeper aquifer beneath the Site and some data gaps exist in the horizontal delineation of the groundwater plume at the Site.

AMEC's preferred alternative of leachate management is the establishment of a contamination attenuation zone (CAZ) and continued groundwater and surface monitoring.

AMEC recommends that a detailed groundwater plume delineation study be carried out including installing up to 19 new monitoring wells at eight locations on and off the Site (Figure 2). This study will recommend the size and location of the CAZ and will allow AMEC to determine if other leachate management alternatives need to be considered for the Site. A risk assessment will be conducted as part of the establishment of the CAZ to assess potential risks to human and environment receptors.

New monitoring wells will be installed in the spring of 2013 at an estimated cost of \$120,000. On completion of the groundwater plume delineation study, requirements of a leachate collection system will be evaluated.

Indoor Air Quality Monitoring

MOE conducted a Site inspection of the landfill Site in December 2010 and forwarded a Closed Waste Disposal Site Inspection Report to the City on March 8, 2011. MOE advised that it is concerned with the possibility of methane gas migrating from the Site to residential properties via sub-surface deposits given that there is no buffer separating the limits of the landfill and the abutting residential properties. In some cases the landfill extends into the residential property backyards. MOE directed the City to submit a more stringent and expanded plan to monitor methane gas concentrations within the residential properties bordering the north and west boundaries of the landfill Site.

In response to the MOE direction, indoor methane monitors have been installed inside three (3) of the residential homes and staff is in the process of installing indoor monitoring in a further one (1) home. Indoor monitoring will be carried out for a period of one year.

An external provider (Tervita Corporation) has been retained by the City to provide first response. If methane gas is detected in any of the residences at a concentration greater than 1% by volume, an alarm will sound and the resident has been instructed to call Tervita Corporation. Tervita staff will visit the home and determine the source of the methane and recommend a course of action for the resident until the situation has been resolved. The protocols to be followed in the event that an alarm is triggered are included in Attachment "A".

South Boundary with Bayview Golf and Country Club and the National Spiritual Assembly of Baha'i of Canada

There is no gas collection system currently at the southern boundary of the landfill Site. Methane levels monitored at the gas probes in this area have fluctuated from 0 to 40%. In April 2012, two indoor methane gas monitors were installed inside the golf course maintenance buildings. To date, methane concentrations at these monitors have not exceeded the trigger value for off-site buildings of 0.05% by volume which is 100 times lower than the explosive limit of 5% volume. In

the event that the alarms on these methane monitors indicate exceedances of the trigger values, the Tervita Corporation will respond.

The estimated cost of a gas collection system including an electrical generator at the southern boundary is \$500,000. The City's consultant, AMEC Environment and Infrastructure recommends that the City continue indoor monitoring and maintaining the current management procedures as long as the methane levels inside the maintenance buildings remain undetected.

FINANCIAL CONSIDERATIONS AND TEMPLATE: (external link)

- The remaining funds in account 750-101-5399-7028 (\$367,776), which was originally allocated for aerobic system conversion, will be used to carry out the following recommended additional rehabilitation work as the City will not proceed with the aerobic technology:
 - (a) Backup generator and motor;
 - (b) Installation of new monitoring wells;
 - (c) Groundwater plume delineation study; and
 - (d) Monitoring works by Tervita Corporation
 - (e) Installation of signage described
- Regular monitoring program will be funded from 2013 Capital budget 'Former Sabiston Landfill – Management' project #13357 in the amount of \$232,900 subject to budget approval by Council.
- Regular maintenance works will be funded from 2012 approved capital account 750-101-5399-12314 'Former Sabiston Landfill - Equipment Repairs' with available budget of \$105,900.

HUMAN RESOURCES CONSIDERATIONS:

Not Applicable

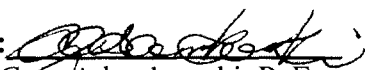
ALIGNMENT WITH STRATEGIC PRIORITIES:

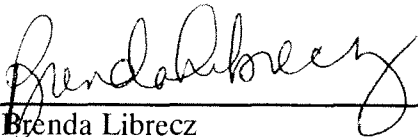
Not Applicable

BUSINESS UNITS CONSULTED AND AFFECTED:

The Planning and Legal Departments have been consulted and provided input to the report.

RECOMMENDED

BY: 
Gary Adamkowski, P. Eng.
Director, Asset Management

BY: 
Brenda Librecz
Commissioner, Community & Fire Services

ATTACHMENTS:

Figure 1 – Site Location

Figure 2 – Proposed Groundwater Monitoring Locations

Attachment "A" – Protocol for Alarm Sounding inside Homes