Town of East Gwillimbury

Our town, Our future

OPERATIONAL GUIDELINE

IMPLEMENTATION OF FILL AND SITE ALTERATIONS BY-LAW

TOWN OF EAST GWILLIMBURY

Prepared in collaboration with:

Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

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DOCUMENT CHANGE TABLE

Revision No.	Revision Description	Revision Date	Approved By:
0	Original Operations Guideline	April 2013	EG Council
1.0	Source Site Restriction – Material from soil remediation & treatment facilities not permitted.	November 2015	Community Infrastructure and Environmental Services

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1. PREFACE

Terraprobe Inc. was retained by the Town of East Gwillimbury to assist in the preparation of an Operational Guideline for implementation of the Fill and Site Alteration By-Law for the Town of East Gwillimbury. Essentially this Operational Guideline deals with the specifics related to fill quality, ground water monitoring, applicable environmental best practices and supporting quality control/assurance, monitoring and validation mechanisms.

This Operational Guideline is for larger commercial sites where proponents or site owners are applying for a permit to import clean fill from other locations and place that material on a specific site. The Town however, may also choose to apply these principals to some degree to smaller non-commercial filling operations.

The Town of East Gwillimbury wishes to ensure that the site is suitable for receiving fills, and that the fill that is being placed meets current standards from an environmental perspective.

The site classification governed by Ontario Regulation 153/04 (EPA) and amendments will dictate the types of fill which can be placed and the suitability of the site.

It should be noted that the Municipality through their planning process have zoning by-laws in place respecting the Greenbelt and Oak Ridges Moraine Legislation. The Town's current Zoning By-Law does not allow placement of fill for Commercial Fill Operations within the Oak Ridges Moraine with the exception of disturbed Ministry of Natural Resources licensed aggregate extraction sites for the purpose of site restoration.

This Operational Guideline associated with the Fill and Site Alteration By-Law is not intended to apply for small re-grading type sites and other filling operation exemptions under the By-Law such as projects associated with land development as this is another approval mechanism process. However, some principals may overlap and it could be used to assist in smaller soil management issues.

The essence of the process would be to first ensure that the proponent carries out adequate hydrogeologic and soil studies of the site and surrounding area in order to ensure that it is appropriate for fill placement and to define constraints associated with fill placement. Groundwater protection is the main long term objective along with fill operation management to minimize impact to surrounding properties and roads. This will involve advancement of test holes to define soil as well as background shallow ground water conditions on the subject property and surrounding area.

The study should also include a hydrogeological assessment to review the regional ground water conditions, including nearby private wells or surface bodies of water which could be impacted from the

site alteration or placement of new fills.

This will likely include installation of ground water monitoring wells at the property boundary as well as conducting door-to-door surveys of existing water supplies and conditions in the area.

Once the proponent has demonstrated the site is appropriate for receiving fill and has adequately characterized the site and surrounding area, and has applied for and received a Fill and Site Alteration By-Law permit, then the next step from the Municipality's perspective is to ensure the proponent carries out adequate testing and assessment of fills that are to be received. The proponent will be required to provide a quality control program to ensure that standards are met.

The Municipality, as part of the approval process will carry out independent quality assurance assessments (paid for by the proponents) during fill placement as well to ensure that the proponent is carrying out the adequate studies on a timely and suitable basis.

The proponent would be required to adhere to protocols based upon Ontario Regulation 153/04 and amendments for source fill evaluation and receiving fill at the site. This last step provides significant assurance to the Municipality that the operation will not adversely impact the surrounding environment from a soil and ground water perspective.

The applicable legislation that the fill quality component of the By-Law and testing is based upon Ontario Regulation 153/04 and amendments under the Environmental Protection Act (EPA). It is also the legislation that is used and considered currently by financial institutions with respect to mortgaging and financing and drives the requirements for Phase One and Phase Two Environmental Site Assessments as well.

The following sections in this Operational Guideline for implementation of the Fill and Site Alteration By-Law is intended to assist the Municipality and associated parties with respect to the requirements and expectations.

2. GOVERNING REGULATIONS AND RESPONSIBILITIES

The intention of this guideline is to provide steps for all parties with respect to the studies that will be required and the expectations of the proponent for any Commercial Fill projects.

The By-Law has been drafted by the Municipality and will form the basis of the approval and quality control process. It incorporates Ontario Regulation 153/04 (EPA) and amendments which defines the appropriate individuals who can carry out the studies (i.e. Qualified Persons or (QPs)), and is the basis for the depth of studies and testing that is required and the requirements for site classification and or characterization.

It will be the proponent's responsibility to ensure that the site is adequately characterized and sufficient hydrogeological studies are carried out to confirm that the site is suitable for receipt of clean fill and that impact to ground water in particular, will be acceptable under the regulation both on and off site.

During the actual filling of the site the proponent will be responsible to ensure that the sources of fill are adequately assessed by a Qualified Person. This will require a characterization of the source sites followed by appropriate chemical testing with respect to the parameters to be tested, the number of tests, and adequate reporting of these source site tests to the Municipality.

It is important to understand that the proponent and his Qualified Person will be responsible for completing the tests within the protocol based on Ontario Regulation 153/04 and amendments. This will ensure that adequate testing under the proposed testing regime is carried out through the whole process in order to achieve that ultimate goal. In this regard, there must be regular reporting to the Municipality to provide assurance that the operations are carried out in compliance with the By-Law and the Operational Guideline.

The Municipality will periodically review the testing and conduct inspections to ensure that the proponent completes the requirements under the Fill and Site Alteration By-Law.

All applicable engineering and environmental principles and best practices are to be considered throughout the approval, assessment and execution of all filling operations.

3. COMPONENTS FOR ASSESSMENT AND APPROVAL

The proponent at the time of making an application under the Fill and Site Alteration By-Law will require submission of a number of minimum reports in order to characterize the site. These would generally be governed by Ontario Regulation 153/04 and amendments. The following minimum studies will be requested and reviewed by the Municipality.

a) Completion of a Phase One and/or Phase Two Environmental Site Assessment of the receiving site and determination of the site criteria with respect to the types of fill which could be received.

b) Conducting a hydrogeologic assessment which would include onsite shallow ground water characterization as well as regional hydrogeologic assessment within a minimum of 500m of the subject property. This hydrogeologic report would be prepared by a Qualified Person as defined by Ontario Regulation 153/04 and adequately demonstrate or characterize the shallow ground water aquifer(s) conditions in the defined area.

c) As part of the hydrogeological study, the proponent will need to carry out a door-to-door survey of existing ground water and surface water resources, and Permits to Take Water in order to be able to address impact to adjacent properties and what degree of long term ground

water monitoring program will be required.

d) The Municipality will be responsible to retain a peer review of the reports, at the cost of the proponent, prior to providing a Fill and Site Alteration By-Law permit to ensure adequate studies have been completed and submitted.

e) The proponent will be responsible for providing extensive source fill quality control testing. This will require that the source fill site be subject to a Phase One Environmental Site Assessment to determine which soil parameters will need to be assessed and which concerns need to be properly addressed. This is then followed by onsite source soil testing of the appropriate parameters and frequency of tests as defined under the Regulation. The reporting will have to adequately define the rationale for the parameters that are tested, adequate illustration of where the tests were carried out and at what depth and the rationale for the frequency of testing as it would be directly related to the cutting or sub-excavation of the material for transport to the receiving site and comments from the Qualified Person with respect to any possible constraints.

f) The proponent will also be responsible to ensure that records are kept at the receiving site, with respect to the placement of the source materials in terms of the quantity and location, both in horizontal and vertical delineation on the subject property. Copies of the reports will be submitted to the Municipality on a monthly basis or as agreed with the Municipality.

g) Periodic quality assurance review will be carried out by the Municipality; at the cost of the proponents to ensure that these steps are being followed on a regular basis.

h) During the process, ground water monitoring will also be required by the proponent to ensure an adequate background study is established with respect to the ground water conditions and that ground water quality is tested during and after the filling operation. Both on site and off site monitoring could be required as determined by the QP at the permit application stage.

i) The proponent will be responsible for completing and documenting testing using protocols submitted by their QP based on Ontario Regulation 153/04 and amendments and approved through the municipality Peer Review process.

j) The proponent will be required, to provide financial assurance with the Municipality; to be in place at the beginning of the permit adoption and be left with the Municipality for a defined period of time as determined by the Municipality.

k) The proponent will need to follow terms and conditions included in the Fill and Site Alteration By-Law Permit and agreement including requirements for survey, grade control, and quantity monitoring.

l) The proponent will be required to enter into an agreement with the Town respecting all matters associated with the filling operation.

4. RECEIVING SITE HYDROGEOLOGIC CHARACTERIZATION AND REQUIRED STUDIES

Prior to issuing a permit, the proponent must carry out adequate hydrogeologic site characterization to ensure the site is suitable for receipt of various source fills.

These studies will be provided by the proponent and will involve on site test hole investigations, and installation of monitoring wells. The proponent's QP will also be required to review well records and conduct door-to-door well surveys within a minimum 500m radius of the subject property with completion of hydrogeologic cross sections as a minimum. The work will be carried out by a Qualified Person (QP) as defined under Ontario Regulation 153/04 and amending legislation and further defined within the Town by-law and will include a professional opinion with respect to the suitability of the site to receive fills and full disclosure and discussion of any potential constraints or concerns. The studies will also provide a recommendation with respect to the long term ground water monitoring which will be required and at what locations monitoring wells will need to be installed, both onsite and perhaps offsite.

These studies must also identify the location of any vulnerable areas as identified in the Assessment Report under the Clean Water Act.

The reports will be provided to the Municipality prior to issuance of a Fill and Site Alteration Permit being issued. They will be peer reviewed and approved by a consultant of choice from the Municipality at the proponent's cost.

The requirements as outlined in the actual By-Law will also need to be addressed by the proponent. The proponent needs to complete sufficient studies to prove there will be no impact prior to any approvals for fill importation.

The following specific requirements and check list should be submitted to the Town:

- plot all well records within a minimum 500 m radius of the site (or greater if required by Town QP)
- provide at least 2 hydrogeologic cross sections
- door to door survey with background water quality samples
- installation of wells at up, cross and down gradient locations in the water table and any other aquifer zones that may reasonably be impacted
- 2 sampling events prior to filling
- 2 x annual monitoring for life of filling operation
- annual monitoring following filling operation to be determined by QP's
- identification of potential impacts to local wells and recommendations for contingency plans
- pre- and post-development water balance
- impact to surface water resources

Archival data applicable to the site could be considered by the QP to complement or be in lieu of some of the above, provided it can be supported under the Regulation.

5. SOURCE MATERIAL TESTING

The proponent will be required to have testing and reports presented for each source material site. This permit defined under the Fill and Site Alteration By-Law is for fill placement and deals with soils that are considered suitable for placement in the particular environment. This will require compliance with the standards contained in the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Act, as amended, and as determined by the Qualified Persons. This will be governed by the initial site characterization work that is carried out and the appropriateness of which types of fills and conditions would prevail.

The proponent will be responsible for ensuring that any source sites of material are reviewed and tested by a Qualified Person. This will require the Qualified Person to have a Phase One Environmental Site Assessment completed for the source site or provide justification to ensure they can adequately recommend which soil parameters will need to be tested and/or which areas of the site of the source material would be suitable for transport to the receiving site.

The Qualified Person representing the proponent must then prepare a report or reports that would be submitted to the Municipality for review for acceptance prior to delivery to the site. The frequency and amount of testing will also be submitted by the proponent's QP, based on Ontario Regulation 153/04 and amending legislation. The reporting will need to adequately discuss the rationale for the test parameters selected, the frequency of testing, the locations of testing and a recommendation be provided by the QP with respect to the suitability of this source material to be transferred to the receiving site.

It is anticipated, but dependent on the size of the fill operation to be carried out, that this will result in several source material site test reports over an extended period of time.

The proponent must maintain an inventory of the various source material sites which are evaluated and accepted for receipt at the licensed receiving site.

Each source fill assessment should be provided to the Municipality for their review and confirmation of approval prior to importing to the site. However, it is still the proponents' responsibility through their QP to ensure quality regardless of the Town's review.

The proponent must submit protocols for approval based on Ontario Regulation 153/04 and amendments and protocols (ie: soil management plan) which includes:

- Phase One on all generating sites
- System to control trucks (ticket system)
- Records of dates, sources, placement location and elevation, sampling
- Appropriate sampling **prior to receipt** at site as agreed to with the Municipality
- Appropriate sampling as placed at receiving site as agreed to with the Municipality
- Monthly summary of results (volumes, chemistry, truck tickets, incidents)
- Contingency Plan for bad fill

Source soil generated as a function of a waste soil treatment and/or remediation facility is not considered an approved source site material for filling operations within the Town of East Gwillimbury. This source site prohibition shall be in force even when the facility is operated under an Environmental Compliance Approval issued by the Ministry of the Environment and Climate Change. (Rev. 1.0)

6. QUALITY CONTROL DURING IMPORTATION OF FILL

It will be the proponent's responsibility to provide adequate quality control of fill importation. This includes adequate assessment of the source materials as discussed in Section 5, as well as keeping a log or inventory of when and where all materials come from and whether they are placed on the subject property.

Submitted guidelines for testing should be based on Regulation 153/04 (EPA) and amendments and must be adequately interpreted and followed by the QP representing the proponent and approved by the municipal QP.

7. QUALITY ASSURANCE BY MUNICIPALITY

The Municipality, as discussed above, will carry out quality assurance during the operational process via review of the proponents testing and site inspections. These steps include:

a) Review of the initial site characterization and hydrogeologic investigation studies to determine whether the site is suitable to receive the fill

b) Receive reports with respect to each source material site to ensure that they meet the current standards.

c) Ensure on a periodic basis, as will be determined in each permit application, receipt of the proponent's quantity and placement of fill operation procedures and activities. These reports will be reviewed and approved by the Municipality and/or by the assigned peer review consultant.

d) The Municipality will also need to ensure that the requirements and conditions set out in the Permit are also met by the proponent.

e) The Municipality will also need to ensure that the proponent follows their submitted procedural protocol based on Ontario Regulation 153/04 and amendments in their approved Fill Management Plan.

f) In the event that filling of the receiving location transpires over an extended period of time or through Permit amendments or extensions, the Municipality must ensure that ground water monitoring is maintained and reported by the proponent.

g) Municipality has right of inspection.

h) Includes possible independent sampling of soil and monitoring of ground water levels and quality if required.

i) Municipality may revoke permit if conditions are not in compliance.

j) Monitor hours of operation and traffic to ensure operating parameters are maintained.

k) Establish and ensure compliance with road/site entrance maintenance requirements.

l) Monitor and ensure compliance with site management/stockpiling and phasing protocols.

m) Formalize the municipality's expectations regarding general health and safety compliance.

8. GROUND WATER MONITORING

As part of the initial site characterization hydrogeologic studies, there will a requirement for assessing background shallow ground water and aquifer quality at the site, property boundaries, and provide a baseline study of surrounding properties. The initial hydrogeologic study will define which offsite properties may also need to be included in a monitoring program. These studies will also define the extent of ground water monitoring that will be the most appropriate for the site location, size and nature of fill placement operation. It is suggested that once the permit has been issued and the operation is initiated, the ground water monitoring reports be provided annually by the proponent to the Municipality for peer review. The monitoring and reporting must continue even if fill placement ceases for a period time.

The following specific requirements and check list should be submitted to the Town:

- plot all well records under 1km from the sites perimeter
- provide at least 2 hydrogeologic cross sections
- door to door survey with background water quality samples
- installation of wells at up, cross and down gradient locations in the water table and any other aquifer zones that may reasonably be impacted
- 2 sampling events prior to filling
- 2 x annual monitoring for life of filling operation
- annual monitoring for a time to be determined by the QP's following filling operation is complete
- identification of potential impacts to local wells and recommendations for contingency plans
- pre and post development water balance
- impact to surface water resources
- need to do study and prove there will be no impact prior to any approvals for fill importation

9. FINANCIAL ASSURANCE

The issuance of a Fill and Site Alteration By-Law Permit will include provisions for the proponent to provide some form of financial assurance at the outset to the satisfaction of the Municipality. This is to ensure that if the proponent does not complete the task as outlined or required, there will be some financial means for the Municipality to complete those studies and assure the site is adequately secured from an environmental perspective.