

# Model Fill Management Plan (FMP) for Large Scale Fill Receiving Sites

*Preamble: This Fill Management Plan was drafted with excerpts adapted from Fill Protocols in the municipalities of Uxbridge, Scugog, East Gwillimbury and Whitchurch-Stouffville and with reference to requirements detailed in the Ministry of the Environment and Climate Change (MOECC), “Management of Excess Soil – A Guide for Best Management Practices” January 2014, as amended (MOECC BMP).*

*The purpose of this Plan is to ensure the environmentally protective placement of acceptable fill materials at the Receiving Site and to ensure the filling operations at the Receiving Site do not cause an adverse effect or a degradation of the pre-existing soil and ground water quality conditions. This document outlines the recommended minimum requirements that a Municipality may require and/or should consider be included in authorizing documents when managing large fill operations. Aspects of this plan can be adapted for small scale fill projects as appropriate.*

## FILL MANAGEMENT PLAN

This Plan has been developed to manage operations at a Fill site [redacted] herein after referred to as “the Receiving Site”)

**Comment [WU1]:** Insert name and municipal address of the receiving site

## INTRODUCTION

The following document describes fill management procedures at the Receiving Site. This Plan will be administered and enforced by the Receiving Site’s Qualified Person (QP) as defined in Section 5 of Ontario Regulation 153/04, as amended, on behalf of Owner of the Receiving Site. The Municipality or any other entity incorporated for self-government, at the expense of the Owner of the Receiving Site, will be responsible for ensuring compliance through audits, inspections, sampling and any other means deemed appropriate by the Municipality.

## DEFINITIONS

Words or phrases in this Agreement shall have the same meaning as so defined in the Site-Alteration By-Law.

## REGULATORY COMPLIANCE

Any soils received at the Receiving Site or destined for the Receiving Site shall be managed in accordance with the MOECC document entitled, “Soil Management – A Guide for Best Management Practices”, January 2014 as amended (MOECC BMP). All handling, sampling, assessing and receipt of soils at the Receiving Site, shall be done in accordance with the provisions of O. Reg. 153/04, as amended where applicable. It should be noted that, for the

purposes of this document, the applicability of the provisions of O. Reg. 153/04 are not limited to sites where a Record of Site Condition (RSC) has been submitted or will be submitted to the MOECC. Rather, the relevant provisions of O. Reg. 153/04, as amended, included in this document, apply and should be adhered to for any site where excess soils are generated or received for reuse. Compliance with either of the documents listed in this paragraph does not abrogate the need to comply with any other applicable federal, provincial or municipal legislative or regulatory requirements.

## SOURCE SITE APPROVAL

Care needs to be taken to delineate and distinguish fill quality at every Source Site to ensure only acceptable soil and fill materials are shipped to the Receiving Site. Managing fill from Soil Remediation facilities is addressed in Appendix A.

Before accepting any soil from a Source Site, the Receiving Site QP must review:

- (a) All environmental documentation regarding the management and treatment and quality of soils at the Source Site, including but not limited to any environmental assessments undertaken at the Source Site, including all Phase I and/or II Environmental Site Assessment (ESA) reports, and/or remediation reports, as well as any compliance documents issued (i.e. MOECC Environmental Compliance Approvals);
- (b) A site specific Soil Management Plan (SMP) for the Source Site, signed by the Source Site QP, that will be utilized to ensure that soil transported to the Receiving Site meets the soil quality standards approved by the Municipality as designated in the Agreement for the Receiving Site;
- (c) The Source Site SMP shall include as a minimum:
  - (i) Indicators that define all areas to be excavated with the estimated volume of excess soil to be managed off-site and the representative chemical composition of the excess soils, along with detailed instructions to on-site contractors identifying the depth of soil to be excavated for off-site management;
  - (ii) Appropriate characterization of all excavated soil by a QP, or a person under the supervision of a QP, to determine the volume and chemical composition of the soil that is to be managed off-site;
  - (iii) Appropriate sampling and laboratory testing to ensure that all contaminant of concern parameters in the soil are identified and characterized. The sampling frequency of soils shipped to a Receiving Site must, at a minimum, be at a frequency as set out in O. Reg. 153/04, as amended for

### Comment [cm2]:

If it is known or can reasonably be determined that a *Potentially Contaminating Activity*, (meaning a use or activity set out in Column A of Table 2 of Schedule D of O. Reg. 153/04) has been or has likely been engaged in at the Source Site, a full Phase One Site Assessment ( prepared in accordance with Schedule D of O. Reg. 153/04) must be prepared and signed by a QP. A Full Two Site Assessment must also be prepared if required based on the Phase 1 findings. When the new Excess Soil Re-use Regulations are passed, the soil characterization requirements for Source Sites will be adopted into this Model Plan.

**Comment [CM3]:** Note that in most instances the Table 1 Standard of the Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act, dated April 15, 2011 is recommended.

Otherwise, a Risk Assessment, as detailed in Schedule C of O. Reg. 153/04 as amended, including consideration of the effects of contaminant loading on pre-existing ambient conditions, must be completed and should be peer reviewed by the Municipality's consultant if Standards above Table 1 Background are being proposed.

The Owner shall ensure a pre-assessment of the ambient soils on the Receiving Site...

**Comment [CM4]:** All laboratory testing must be conducted by qualified and certified laboratories as required by O. Reg. 153/04, as amended.

**Comment [CM5]:** The Chemical composition testing should be based on knowledge of current and historical potentially contaminating activities that have occurred at the Source Site. In the absence of land use information, soil samples should be analyzed for General & Inorganic Parameters, Metals, Volatile Organic Chemicals (VOC Scan), F1-F4 Petroleum Hydrocarbon Fractions and ...

**Comment [CM6]:** Refer to PIBS 8429e – April 2011.

**Comment [cm7]:** The frequency recommended here will change to reconcile to the frequencies as proposed in any future excess soil policy regulations. This section will adopt the frequencies required for testing stockpiled and in-situ soils at the source site.

soils shipped to an RSC property. For soils from all Source Sites, analysis shall be as follows at a minimum: one (1) sample for every 160 cubic metres for the first 5000 cubic metres from each Source Site, then one (1) for each additional 300 cubic metres of soil from said Source Site. The QP of the Receiving Site must verify in writing that this has been done; and

- (iv) Documentation signed by the Source Site QP, including appropriate and representative soil analyses, confirming that the quality of fill meets the Receiving Site's soil standards as designated in the Agreement, including the Sodium Adsorption Ratio (SAR) and Electrical Conductivity (EC) standards.
- d) If the Receiving Site QP is unsure of the quality of the proposed soils, the QP must either order or undertake resampling or additional sampling of soils at the Source Site before further considering these soils for receipt at the Receiving Site.
- e) If all criteria have been met, the Receiving Site QP will write a Source Site Approval Report indicating the volume of soil approved and any analysis and reports used to approve the Source Site soils.
- f) The Owner of the Receiving Site shall provide all required documentation to the Municipality for review by the Municipality's Consultant, who will peer review all documentation from the Source Sites at the expense of the proponent. The Municipality's Consultant will have the option to carry out a reconnaissance of the Source Site to confirm that an appropriate representative Soil Management Plan is in place. All fees associated with the peer review will be borne by the Owner of the Receiving Site. The Municipality can request further documentation or testing at its discretion and will then approve or reject management of soils/fill from the Source Site at the Receiving Site based on the peer review. No soils are to be shipped to the Receiving Site without the advance written approval of the Municipality.
- g) Notwithstanding anything else contained in this Fill Management Plan, soil from minor excavations such as basements of a single residential dwelling and pools for individual lots may be exempt from requiring a source site QP to sign off on a Soil Management Plan provided the soils are still screened and tested as for any other Source Site when they **arrive** at the Receiving Site, and with the approval of the Director.

The QP of the Receiving site shall sign off on the quality and quantity of soil being imported from these sites. A building permit/excavation permit or pool excavation contract shall be supplied to the QP of the Receiving site and to the Director to further verify the soils are coming from this type of excavaton.

**Comment [CM8]:** Where de-icing salts are known to have been used or suspected to have been used, metals analyses including total cyanide and boron, and pH must be included for the same soil sample. Cyanide salts are used in de-icing agents including salt. Cyanide contaminated soil will generate free hydrogen Cyanide gas under acidic conditions. Hydrogen Cyanide is highly toxic and can be lethal at high concentrations.

## ON SITE APPROVAL PROCEDURES

### Volume Approval

Once the above criteria have been met for excess soil at the proposed Source Site, the Source Site Manager is permitted to purchase fill tickets from the Receiving Site Owner. The number of tickets issued is based upon the estimated volume of soil to be received from the Source Site. Before any soil is shipped to the Receiving Site, the volume of soil must be approved by the Receiving Site QP based on a review of all documentation and analytical data and must further be approved by the Municipality. Should the operators of the Source Site wish to ship more soil than has been approved by the Receiving Site QP and the Municipality, the Receiving Site QP will justify the need to do so by requesting the appropriate supporting documentation stating the rationale for the increased soil volume. The Municipality shall be notified forthwith to facilitate the review and approval for management of the additional soils.

**Comment [CM9]:** The municipality may want to consider being a co-signer on the fill tickets in order to further ensure the integrity of this process.

**Comment [CM10]:** Estimated Soil Volume Method should be reviewed by the Receiving Site QP to insure that in-place estimates have been subject to “fluff factor” correction by an additional factor of 10% as a general estimate. Other “fluff factors” can be used based on experience or testing.

This will minimize requests of additional soil volume approval.

### Posting Records/Transparency

Following confirmation that the quality of Fill from the Source Site is acceptable for placement at the Receiving Site, the Receiving Site QP will forthwith post Source Site Approval Reports on the internet at a unique website created for the Receiving Site (e.g. [www.theSite.net](http://www.theSite.net)). The Source Site Approval Reports are to be signed by the Receiving Site QP and must detail the volume of soil approved by the Receiving Site QP and the soil analytic results used by the Receiving Site QP when approving the Source Site. The web page will be available to the public for review. Note that all audit testing reports of soils at the Receiving Site shall be posted as well.

**Comment [U11]:** Audit testing refers to the routine sampling and analysis of soil undertaken at the Receiving Site by the Receiving Site QP to verify the quality of the Source Site soil being received.

### Fill Tickets

There must be a QP or a person designated by the QP at the Receiving Site at any time that the Receiving Site is open for receipt of fill. The QP is responsible for monitoring the quality of incoming fill received at the Receiving Site. Any fill received at the Receiving Site shall be handled in accordance with this Plan.

A sample Fill Ticket is included in Appendix B.

A Fill Ticket must be presented to the Receiving Site’s gate staff before the truck offloads the fill. Gate staff must check to ensure that the Fill Ticket is valid. Gate staff will provide each Fill Ticket to the Receiving Site administration staff for record-keeping purposes by the end of each working day.

### Documentation

Administration staff at the Receiving Site are to keep the following documentation for the tracking of all incoming loads of fill for review by the Municipality at their request:

- (a) A copy of all Fill Tickets corresponding to all loads received at the Receiving Site;
- (b) Name and location of the Source Site;
- (c) Date and time of arrival of each load at the Receiving Site;
- (d) The name and licence plate number of each truck that delivers fill to the Receiving Site;
- (e) Daily volumes of soil received from each Source Site;
- (f) Documentation signed by the Source Site QP that includes appropriate and representative soil analyses of the soil at the Source Site by an accredited laboratory (SCC - <https://www.scc.ca>. or CALA - <http://www/cala.ca/>) confirming the soil quality is acceptable for the intended Receiving Site in accordance with the Receiving Site's Fill Management Plan;
- (g) Confirmation by the Receiving Site's QP acknowledging that the quality and quantity of the soil is acceptable for receipt at the Receiving Site; and
- (h) Details of any rejections of any loads of soil due to visual inspection or review of analytical results, including reasons why the load was rejected at the Receiving Site and how it was eventually managed.

### Screening Loads

Incoming loads of fill are to be monitored by the Receiving Site's QP or the QP designate as they are unloaded to verify that only acceptable materials are included in **each of the loads received**. Each incoming load is to be visually inspected and screened for odours, staining, debris or other forms of contamination whether known or suspected. The use of a photoionization detector (PID) or flame ionization detector (FID) should be used to screen for VOCs. The daily shipments are to be reviewed by the Receiving Site QP or QP designate to ensure each load is coming from an approved Source Site.

Fill that is observed to contain unacceptable materials, odours, staining or elevated headspace vapours as determined using a PID or FID, must be returned to the Source Site. The Fill Ticket is forfeited under these circumstances. Should the Source Site refuse to take back the unacceptable load(s), the Owner is responsible for ensuring such loads are removed and brought to a facility approved to accept such loads. Staff at the Receiving Site shall record the rejected load in a daily log. The Receiving Site QP will also keep a record of the contaminated load and its fate. Any further soils from the Source Site will not be permitted to be shipped to the Receiving Site until the unacceptable material is removed to an appropriate facility or returned to the Source Site and until it can be demonstrated that the remaining soil at the Source Site that are destined to be shipped to the Receiving Site meets the appropriate standard for the Receiving

Site. This will be carried out through confirmatory sampling of stockpiles or excavations at frequencies required by O. Reg. 153/04, as amended - See Table 2 and 3 in Schedule E of Part 12 of O.Reg. 153/04, as amended.

The QP at the Receiving Site shall record, in a log kept at the Receiving Site, any instances when fill is returned under these circumstances, recording the Source Site, hauler, date of the incident, and any and all information pertaining to the unacceptable fill. This information shall be reported to the Municipality forthwith for review and action. If applicable, the Municipality could withdraw approval of the Source Site based on these incidences. The information should also be summarized in Quarterly Reports submitted to the Municipality.

### Segregation

Soils from each Source Site shall be deposited in segregated areas within the approved fill area of the Receiving Site so that they can be assessed via the audit testing described below and returned to the source site if necessary.

**Comment [CM12]:** OSRTF observes that some municipalities allow only one source site at a time for particular large fill projects.

### Sampling Requirements at the Receiving Site

The QP at the Receiving Site, or the QP's representative, shall collect a **minimum of one (1) audit sample of soil received from each approved Source Site per day, which shall be submitted to an approved laboratory for chemical analysis.** Audit sampling protocols are to be developed and utilized by the Receiving Site QP, sufficient to produce results that would be representative of the volume of excess soil that is being received from each Source Site.

Any significant discrepancy between source soil testing documentation and the audit testing performed at the Receiving Site should be reported forthwith to the Director or their designee.

The Owner or designate shall ensure that the accredited testing laboratory copies the Municipality directly on reports for all audit samples taken.

It is understood that the Municipality will retain their own QP (Municipal Consultant) to collect samples for testing at the frequency agreed to in the Agreement. **The minimum amount of testing by the Municipality shall be weekly.** The location, frequency and timing of sampling will be at the Municipality's sole discretion.

All Municipal costs incurred will be borne by the Owner of the Receiving Site.

### CONTINGENCY PLAN FOR FAILED AUDIT TESTS

In conjunction with the procedures for Screening Loads as detailed in this Plan, a Contingency Plan shall be developed by the Receiving Site Owner for review and approval by the Municipality to deal with failed audit tests received from the laboratory. Provisions in the plan must include, at a minimum, language to indicate that loads with failed audit tests must be removed along with a rationale for the additional volume of soil that must be removed for export

back to its origin and the amount of confirmatory sampling that will be carried out at the Receiving Site to ensure that all contaminated, non-compliant fill is identified for removal.

A confirmatory sampling study will be performed at the Owner's expense to verify that all contaminated fill has been removed. The approach shall follow the procedures outlined in Schedule E of O. Reg. 153/04 as amended, as noted below.

Schedule E of O. Reg. 153/04 as amended, Part III, Section 7. (1) to 7.(5) discusses delineation of soil not meeting Standards to establish vertical/lateral extent of impacts (i.e. the volume of material needed to be excavated and removed from the site) and Sections 39 to 40 discuss the requirements for confirmatory sampling following excavation of impacted soil (i.e. confirmation that soil remaining meets Standards). Regarding confirmatory sampling, Table 2 and 3 of Schedule E of O. Reg. 153/04 provide frequency of sampling for stockpiles and excavations respectively.

As for the provision under Screening Loads, any further soils from the Source Site will not be permitted to be shipped to the Receiving Site until the unacceptable material is returned and until it can be demonstrated that the remaining soil at the Source Site that are destined to be shipped to the Receiving Site meets the appropriate standard for the Receiving Site. This will be carried out through confirmatory sampling of stockpiles or excavations at frequencies required by O. Reg. 153/04, as amended - See Table 2 and 3 in Schedule E of Part 12 of O.Reg. 153/04, as amended.

### **Haul Routes**

Trucks transporting fill material and trucks having emptied their loads at the Receiving Site must enter and exit the Receiving Site, respectively, along routes and time intervals designated in the Agreement.

### **GEOTECHNICAL REQUIREMENTS**

The Receiving Site Operator will develop a Contingency Plan that will also address operational issues such as flooding, slumping or collapse of berms, crevicing and the like and will include provisions to mitigate and report on these issues. The Receiving Site Owner will retain the services of an Ontario licenced professional engineer (PEO) with academic qualifications in geotechnical engineering who will assess these issues and provide a quarterly

### **SECURITY/ ENFORCEMENT**

The Receiving Site will be monitored by security cameras located in such a manner as to record movement of soil into the Site.

The Receiving Site will be secured by a fence and an entrance gate that will be locked outside of the approved Hours of Operation. The hours of operation shall be posted at the front gate.

There will be personnel at the entrance to the Receiving Site at all times during Hours of Operation controlling traffic and directing trucks to the appropriate tipping areas.

**Comment [WU13]:** Need to determine how long the video recordings will be kept

## DAILY SITE INSPECTION REPORT

Aside from the other reports and documentation requirements listed throughout this Plan, a Daily Site Inspection report will be generated and made available to the Municipality upon request. The checklist will include the following:

- Date and time of inspection
- Weather conditions
- Printed name and signature of inspector
- Haul route condition
- Grading condition
- Drainage conditions
- Safety concerns
- Dust and noise monitoring
- Security camera function
- Names of Personnel/Operators

## AMENDMENTS TO THE FILL MANAGEMENT PLAN

This Plan will be deemed amended once reviewed and approved by the Director of Public Works and Parks and Municipal Council. Amended Plans shall form part of the legal Agreement with the Municipality.

## APPENDIX A

### SOILS FROM SOIL TREATMENT FACILITIES

Before accepting any soil from a Soil Treatment Facility:

- a) The Receiving Site QP will retain a copy of the facility's Compliance Approval (CA), along with relevant Schedules for review and provide the same to the Municipality. The Receiving Site QP will obtain and review relevant compliance testing and/or analytical reports and submit these to the Municipality for their review;
- b) The Receiving Site QP will reconcile the volumes of tested soils vs. volumes of soils to be shipped according to the requirements in the ECA and schedules.

**Comment [CM14]:** It is important for municipalities to understand that most Environmental Compliance Approvals for Soil Treatment Facilities contain a provision whereby treated soils are prohibited for transport to "Environmentally Sensitive Areas as defined in O. Reg. 153/04 which includes "environmentally significant/protection areas" or howsoever defined by the Township. We recommend municipalities prohibit soils from these facilities from being imported into ESAs, understanding that OSRTF recommends protecting ESAs, in general, from large scale filling operations. We note that the Township of Scugog defines a "commercial fill operation", among other things, as an operation which accepts soils from these facilities, and then prohibits commercial fill operations in their Township.



However, the more restrictive of the preceding requirements and those outlined below shall be required and reviewed by the Receiving Site QP.

**There is to be one (1) test for every fifty (50) cubic metres for Petroleum Hydrocarbon (PHC), Volatile Organic Compounds (VOC), and Benzene, Toluene, Ethylbenzene and Xylene Mixture (BTEX) and there is to be one (1) test for every two hundred (200) cubic metres for Semi-Volatile Organic Compounds (SVOC) and heavy metals by an accredited laboratory. (Note that these requirements are taken directly from Green for Life’s Compliance Approval.) All documentation shall be made available to the municipality and posted to the Receiving Site’s website as described in the “Posting Records” section above;**

- c) The Receiving Site QP will ensure that the SAR and EC parameters are also tested and meet the accepted standard as agreed to by the Municipality. The concentration levels will not exceed Table 2 Site Condition Standards (“SCS”) for the appropriate textured soils;
- d) The Receiving Site QP will ensure that any information provided by the Soil Treatment Facility is prepared or reviewed by the Facility’s QP, or a person working under his/her direct supervision, before it is presented for review to the Receiving Site QP;
- f) The Receiving Site QP and /or the Municipality may require additional sampling or testing of soils from the Facility over and above those parameters and frequencies defined in section B) above.

**Comment [CM15]:** Note that municipalities have the right to request sampling frequencies that are more stringent than those indicated in a particular compliance approval for a soil remediation facility.

### **Audit Sampling at the Receiving Site**

As with other Source Sites, the Receiving Site QP will collect a minimum of one (1) audit sample per day for laboratory testing. In conjunction with daily sampling, audit sampling protocols are to be developed and utilized by the Receiving Site QP sufficient to produce results that would be representative of the volume of excess soil that is being received from the facility. The rationale regarding audit sampling frequency that is representative of the volume of excess soil shall be provided to the Municipality for approval.

In the event that analytical results from any audit sample indicate a concentration greater than the Receiving Site Condition Standards, the Receiving Site QP will immediately notify the Operator of the findings and provide recommendations for mitigation. At a minimum, no further soils will be shipped from the Facility to the Receiving Site until the unacceptable soils are removed from the Receiving Site and the source of contamination at the Facility is discovered.

## Contingency Plan

Please see the Contingency Plan Section as outlined in this Plan.

## Appendix B

A sample fill ticket is included below. A similar one is to be developed and implemented by the QP for the Source Site and must include the quantity of soil on board every vehicle (Note the “volume” must be added to the sample Fill Ticket provided). All Fill Tickets must be retained at the Receiving Site for review by the Municipality at their request.

No: 0000001

Name and Location of Generating Location:
Date Shipped:
Time Shipped:
Haulage Company:
Truck Number:
Licence Plate:
Signature of Authorized Personnel at Generating Location
Date Received:
Time Received:
Assigned Location for Deposit at Receiving Site:
Signature of Authorized Personnel at Receiving Site:

ANY UNSIGNED OR INCOMPLETE FORMS WILL RESULT IN REFUSAL OF LOAD AT THE RECEIVING LOCATION.

WHITE COPY - RECEIVING SITE  
YELLOW COPY - HAULAGE COMPANY  
PINK COPY - GENERATING LOCATION

(Source: The illustrated Fill Ticket is taken from the MNR's Aurora Fill Protocol)