

**Geotechnical Report  
Tom Hall Pit Rehabilitation  
1940 Wrigley Road  
Ayr, Ontario**

Prepared for:  
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Ma003878a  
(rev.) November 12, 2019

**Fill Management Program  
Tom Hall Pit  
Ayr, Ontario**

Prepared for:  
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Ma003238a  
February 15, 2018

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### **Drawing:**

Drawing No. 1: Fill Site Location Plan

## **1. Introduction**

This Fill Management Plan was developed to manage operations at the Fill Site (Tom Hall Pit) in Ayr, Ontario; herein after referred to as "the Receiving Site". Tom Hall Pit is sited at the road intersections of Hilltop Drive and Wrigley Road in Ayr (see attached Tom Hall Pit Details).

It is estimated that 300,000 m<sup>3</sup> will be placed at the Receiving Site.

The purpose of the Fill Management Plan is to ensure the environmentally protective placement of acceptable materials at the Receiving Site and to ensure that the filling operations at the Receiving Site do not cause an adverse effect or a degradation of the pre-existing soil and groundwater quality conditions.

This fill management plan was prepared with reference to the requirements detailed in the Ministry of the Environment and Climate Change (MOECC) "Management of Excess Soil - A Guide for Best Management Practices" dated January 2014, as amended (MOECC BMP).

This document describes fill management procedures at the Receiving Site. The Fill Management Plan will be administrated and enforced by the Receiving Site's Qualified Person (QP) as defined in Section 5 of the Ontario Regulation 153/04, as amended, on behalf of the Owner of the Receiving Site (Tom Hall Pit).

## **2. 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 2104 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.

## **3. 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. A copy of the Protocol and application form for shipment of fill to Tom Hall Pit is provided in Appendix A.

Before accepting any soil from a Source Site, the Receiving Site QP must review 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 Phases 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);

A statement from the Source Site Qualified Professional (QP) stating that in his/ her opinion that the materials are suitable for placement at the Receiving Site in accordance with the requirements of the Protocol.

- Indicators that define all areas to be excavated with the estimated volume of excess soil to be managed off-site and the representative chemical compositions of the excess soils, along with the detailed instructions to on-site contractors identifying depth of soil to be excavated for off-site management.
- Appropriate characterization of all excavated soils by a QP, or a person under the supervision of the QP, to determine the volume and chemical composition of the soil that is to be managed off-site;
- Appropriate sampling and laboratory testing to ensure that all containment of concern parameters in the soil are identified and characterized. The sampling frequency of soils to a Receiving Site must, at a minimum, be at a frequency as set out in the O. Reg: 153/04; as amended for soils shipped to an RSC property.
- For all soils from all Source Sites, analysis shall be as follow at a minimum: one (1) sample for every 150 m<sup>3</sup> for the first 500 m<sup>3</sup> from each Source Site, then one (1) for each additional 300 m<sup>3</sup> of soil from said Source Site. The QP of the Receiving Site must verify in writing that his has been made and;
- Documentation signed by the Source Site QP, including appropriate and representative soil analysis, confirming that quality of fill meets the MOECC Table 1 Soil Quality Standards, including general and inorganic parameters, volatile organic compounds, ply-nuclear aromatic hydrocarbons petroleum hydrocarbons (F1 - F4 fractions) and polychlorinated biphenyl.
- If the Receiving Site QP is unsure of the quality of the proposed soils, the QP must either request or undertake re-sampling or additional sampling of soils at the Source Site before further considering these soils for receipt at the Receiving Site.
- 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.
- The Owner of the Receiving Site shall provide all required documentation to the Municipality for review. The Municipality will have the option to carry out a reconnaissance of the Source Site to confirm that all appropriate representative Soil Management Plan is in place.

#### **4. On Site Approval Procedures**

##### **4.1 Volume Approval**

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.

Estimated Soil Volume Method should be reviewed by the Receiving Site QP to ensure that the in-place estimates have been subject to a "Fluff Factor" correction by an additional factor of 10% as a general estimate.

Should the operators of the Source Site wish to ship more soil than has been approved by the Receiving Site QP will justify to do so by requesting the appropriate documentation stating the rationale for the increased volume.

##### **4.2 Control at the Receiving Site**

The Receiving Site will be fenced and gated to prevent unauthorized access to the Site. The Site will be manned by a trained gate keeper during the times that off-site material is to be received at Site.

The trained gatekeeper will have a written record of information relating to the materials approved for acceptance at the Site, including name of the Source site and authorized representative, the type of materials to be shipped and the approximate times of delivery to the Site and the name of the hauler.

Each load to the Receiving Site will be accompanied by a completed bill of lading indicating the name of the Source site, the name of the hauler, the name of the driver, the date and time of shipment, and each bill of lading will be signed by an authorized representative of the Source Site.

No load of material will be permitted access to the Site unless the material has been approved through the application process and is accompanied by a Bill of Lading completed in accordance with the Protocol. The bill of lading is to be presented to the gatekeeper on arrival at the Site.

The gatekeeper will compare the Bill of Lading presented to him with his record of material approved for acceptance at the Site to ensure the materials has been approved through the application process.

The gatekeeper will complete a visual inspection of each load prior to permitting access to the Receiving Site. Loads containing material not approved for acceptance or exhibiting evidence of possible chemical impact (e.g. unusual odors or staining) will not be permitted access to the Site.

Once the gatekeeper approves the load of acceptance at the Site, he/ she will sign the Bill of Lading and direct the driver to a specific dumping location at the Site. The assigned location will be noted on the manifest and in the log which shall be maintained of each shipment of material to the Site.

A log will be maintained of each load shipped to the Site including rejected loads. The log entry for each load will include the Source Site location the name of the hauler and driver, the license plate of the transporting vehicle, the time and date of arrivals of the load at the Site where the material was deposited and/ or the reasons for rejections of the load if applicable.

All applications and related reports, manifests, logs of materials accepted at the Site, records of material approved for acceptance at the Site will be retained by the Site Owner and/ or the licensee for a minimum of seven years.

Each load of material deposited on the Site will be graded and compacted as required by the Grading Plan.

#### **4.3 Screening Loads**

Each incoming load is to be visually inspected and screened for odors, staining, debris or other forms of contamination whether known or suspected. The use of photo ionization detector (PID) or flame ionization detector (FID) should be used to screen to screen for VOC's. 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, odors, staining or elevated headspace vapors as determined using a PID or FID, must be returned to the Source Site . The bill of lading is forfeited under the circumstances. Should the Source Site refuses 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 materials 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 the frequencies required by O. Reg. 153/04, as amended - See Tables 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.

#### **4.4 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.

#### **4.5 Audit Sampling at Receiving Site**

The QP at the Receiving Site or the QP'S representative, shall collect a minimum of one (1) audit soil sample for every 3,000 cubic meters and submit to an accredited laboratory for chemical analysis.

Samples collected for audit purposes will be submitted to an accredited laboratory and tested for general and inorganic parameters, volatile organic compounds, ply-nuclear aromatic hydrocarbons petroleum hydrocarbons (F1 - F4 fractions) and polychlorinated biphenyl.

In the event that the 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 migration. All unacceptable materials will be located by way of the Site Log, recovered and stockpiled and removed off the Receiving Site. No further soils will be shipped from the Source Site to the Receiving Site until the source of contamination at the Source Site is disclosed.

#### **4.6 Contingency Plan for Failed Audit Tests**

Loads with failed audit tests must be removed along with the 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 shall be carried out 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. Table 2 and 3 of Schedule E of O. Reg. 153/04 provide frequency of sampling for stockpiles and excavation, respectively.

Any further soils from the Source Site will not be permitted to be shipped to the Receiving Site until the unacceptable materials 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 the frequencies required by O. Reg. 153/04, as amended - See Tables 2 and 3 in Schedule E of Part 12 of O. Reg. 153/04, as amended.



#### **4.7 Haul Road**

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

#### **4.8 Security and Enforcement**

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 will 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 appropriate tipping areas.

#### **4.9 Daily Site Inspection Report**

Aside from 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 Road Condition
- Drainage Conditions
- Safety Concerns
- Dust and noise monitoring
- Names of Operator

#### 4.10 Geotechnical Considerations

The following procedures are recommended for the construction of fill sections at the Site, where required.

- All topsoil, organic or deleterious materials should be removed from fill areas.
- The exposed subgrade surface should be proof-rolled with a heavy vibratory roller and examined by qualified geotechnical personnel. Any soft areas detected during the proof-rolling process should be sub-excavated. The area can then be brought up to the final subgrade level with approved and imported materials placed in lifts not exceeding 200 mm and compacted to minimum of 98 percent standard Proctor maximum dry density.
- Any organic, excessively wet, frozen or otherwise deleterious materials should not be used for filling purposes.
- Some moisture content adjustments may be required for efficient compaction depending upon weather conditions at the time of construction.

All backfilling and compaction operations should be monitored by qualified geotechnical personnel to approve material, evaluate placement operations and ensure the specified degree of compaction is achieved uniformly throughout the fill.

We trust that this report is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Yours truly,

**Edward Wong & Associates Inc.**



Edward B.H. Wong, M. Eng. P. Eng.

Distribution: Client

(2)

EW\ Ma003238a - Tom Hall Pit

# Appendix A

## Application Form for Shipment of Fill Materials



**APPLICATION FORM FOR SHIPMENT OF FILL MATERIALS**  
**TOM HALL PIT**  
**Wrigley Drive and Hilltop Drive, AYR**

**1. GENERAL NOTES**

- a) Acceptable fill is defined as being clean and inorganic soil that meets MOECC Document entitled "Soil Ground water and Sediment Standards for Use under Part XVI of the Environmental Protective Act", dated April 2011, Table 1 (Background Sit Conditions) "Residential/ Parkland/Institutional/ Industrial/ Community/ Commercial" property land use criteria for general and inorganic parameters, volatile organic compounds, polynuclear aromatic hydrocarbons petroleum hydrocarbons (F1 - F4 fractions) and polychlorinated biphenyl.
- b) Anyone seeking to ship soils to Tom Hall Pit, Avr. Ontario must complete an application form and receive written approval prior to shipping. Unapproved shipments will not be accepted.
- c) Only "Acceptable Fill" as defined by this "Protocol" will be accepted. All shipments must be accompanied by a signed of "Bill of Lading", the generating location, the materials being shipped and the time/ date of shipment. Shipment that are not accompanied by a signed "Bill of Lading", and/or that contain unacceptable materials, will not be accepted.

**2. APPLICATION FORM INSTRUCTIONS**

- a) The applicant is to complete Part A of the application form. The identify of Site representative who will be completing Bills of Lading from the Source Site must be indicated in Part A.
- b) A "Qualified Professional" must complete Part C and sign Part D of the form on behalf of the applicant.
  - hold a license, limited license or temporary license issued under the Professional Engineers Act (e.g. P. Eng.);
  - hold a certificate of registration under the Professional Geoscientist Act, 2000 and is practicing member, temporary member or limited member of the Association of Professional Geoscientist of Ontario (e.g. P. Geo).
- c) Applications will be reviewed by Edward Wong & Associates Inc. on the behalf of Tom Hall Pit. The completed application, along with complete copies of all reports prepared/ reviewed by "Qualified Professionals" in support of application, should be submitted to

Mr. Edward Wong, P. Eng.  
Edward Wong & Associates Inc.  
441 Esna Park Drive, Unit 19  
Markham, ON L3R 1H7  
ed@edwardwongassociates.com

- d) Part F of the form will be completed by the reviewer and returned by e mail to the applicant. Shipping dates/ times for approved shipments should be coordinated with the Edward Wong & Associates Inc. (telephone 416-903-4288).

### **3. INQUIRIES**

Contact:

Mr. Edward Wong, P. Eng.  
Edward Wong & Associates Inc.  
441 Esna Park Drive, Unit 19  
Markham, ON L3R 1H7  
ed@edwardwongassociates.com

## Part A - APPLICATION FORM

Applicant:
Contact Name:
Applicant Address:
Telephone No.:
E mail address:
Source Site location:
Property Owner:
Contact Name:
Site's Representative (s) authorized to sign Bills of Lading to shipments to Tom Hall Pit in Ayr
Anticipated Volume (m <sup>3</sup> )
Anticipated Start Date
Anticipated Finish Date

## Part B - SCREENING CHECKLIST

<b>Pre-Screening Checklist</b>		
	<b>Yes</b>	<b>No</b>
1. What kind of site is the soil from (either historically or currently)? Mark the appropriate box (s).		
<ul style="list-style-type: none"> <li>• A totally undeveloped site</li> <li>• Agricultural land</li> <li>• Commercial land</li> <li>• Residential land</li> <li>• Transportation corridor</li> <li>• Industrial land</li> <li>• Gasoline Service Station</li> <li>• Dry Cleaners</li> </ul>		
2. What are the adjoining lands (either historically or currently)? Mark the appropriate box (s).		
<ul style="list-style-type: none"> <li>• A totally undeveloped site</li> <li>• Agricultural land</li> <li>• Commercial land</li> <li>• Residential land</li> <li>• Transportation corridor</li> <li>• Industrial land</li> <li>• Gasoline Service Station</li> <li>• Dry Cleaners</li> </ul>		
3. Does the material consist of or contain any of the following?		
<ul style="list-style-type: none"> <li>• Biodegradable, organic materials such tree trunks, leaves, etc.</li> <li>• Construction or Demolition Debris, plastic, metal, wood, brick, concrete, etc.</li> <li>• Former fill material</li> </ul>		
4. Was manure or sewage sludge spread on the site?		
5. Were there any septic tanks or septic systems on the site?		
6. Were storage tanks on the property or adjoining properties?		
7. Was the site used for the storage of any materials such as fuels, pesticides, solvents, batteries or other potential contaminants?		
8. Were there any historical spills of contaminants at the site?		

## PART C- QUALIFIED PROFESSIONAL

Qualified Professional Acting on behalf of Applicant:

Name and Address of Firm:

Telephone No.:

E-Mail Address: :

List of Reports prepared/ reviewed by the "Qualified Professional" in support of the application (attach additional sheet, if required)


## PART D - SIGNATURE OF QUALIFIED PERSON

I have prepared and/or reviewed each of the reports identified above and reviewed the Protocol for Tom Hall Pit in Ayr. I certified that "I am a "Qualified Professional" as identified in the Protocol. It is in our opinion that the materials proposed for shipment is suitable for placement at the Tom Hall Pit facility.

Signature:

Name (Print)

Date (dd/mm/yyyy)



## **PART E AFFIDAVIT**

I, (see below) as a duly authorized representative of the company and in consideration for being permitted to deposit clean fill materials, by signing this document, I am in agreement with the following conditions imposed upon my company.

I certify that documentation submitted for the project site background information and chemical analysis of the fill material under consideration is accurate and complete to the best of my knowledge.

I further certify that I have read the procedures and conditions of the "Protocol" for Tom Hall Pit in Ayr and I understand that the ability to deposit fill material on the Site is that the sole discretion of Tom Hall Pit and the ability to do so can be revoked at any time without notice or warning failure to comply with the procedures as outlined.

**Company:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Signature of Representative:** \_\_\_\_\_

I have the authority to bind the corporation

**Date:** \_\_\_\_\_

**Proposed Receiving Site:** Tom Hall Pit, Ayr, Ontario \_\_\_\_\_

## Part F - COMMENTS ON APPLICATION FORM

### For Tom Hall Pit/ Receiving Professional Only

Application File No.:				
<input type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Additional Information Required				
	Yes	No	Unknown	Not Applicable
Form fully and correctly completed				
Copies of all reports relied upon by Qualified Professional provided for review				
Sufficient detail/ description provided for materials proposed for shipment				
Current and historical activities at generating location and neighbor properties adequately investigated				
Sampling method appropriate, given materials proposed for shipment and parameters of potential concern				
Number of samples collected/ analyzed representative of volume proposed for shipment				
Test results representative of full range of parameters of potential concern				
Suitable QA/QC Program implemented and acceptable results obtained				
Appropriately accredited/ qualified laboratory used				
Where proposed shipments included soil and laboratory results meet MOE Table 1 (non-agricultural land use)				
Overall quality of the reports/ data acceptable				
Reviewed completed by				
<div style="display: flex; justify-content: space-between;"> <span>Signature</span> <span>Name (Print)</span> <span>Date (dd/mm/yyyy)</span> </div>				

# Drawing

## Fill Location Plan



# Tom Hall Pit Site Details

**Site Name:** Tom Hall Pit

**Mailing Address:**

226 BOIDA AVE

AYR, Ontario

Canada

NOB 1E0

**Primary ALPS ID:** 15857

**Operation Status:** Operating

**Operation Type:** Pit

**Licence Type:** Class A Licence

**Licensed Area (ha):** 8.84

**Tonnage:** 350000

**Site Area:** 8.84 (ha)



\*Legal Disclaimer of Liability (click for more)\*

**Map Layers:**

First Nations Reserves (Points)

Ground Water Monitoring Network Well

Ontario Greenbelt

Ontario EcoZones