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DRAFT #3

EXCESS SOIL MANAGEMENT STRATEGY
COLLINGWOOD PIT
788090 GREY ROAD 13
TOWN OF THE BLUE MOUNTAINS, ONTARIO

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APPENDICES

1. GLOSSARY OF TERMS

Area of potential environmental concern (APEC)	means the area on, in, or under a Project Area where one or more contaminants are potentially present, as determined through an Assessment of Past Uses (or Phase One Environmental Site Assessment), including through, (a) identification of past or present uses on, in, or under the Project Area, and (b) identification of Potentially Contaminating Activity
Beneficial Reuse Assessment Tool (BRAT)	means the data file entitled "Beneficial Reuse Assessment Tool" and dated November 19, 2019, as amended from time to time, that is maintained by the Ministry and is available on a website of the Government of Ontario
Class 1 Soil Management Site	means a soil bank storage site or a soil processing site (and generally has been issued an Environmental Compliance Approval by the MECP)
Class 2 Soil Management Site	means a waste disposal site, other than a Class 1 soil management site, at which excess soil is managed on a temporary basis and this is: • Located on a property owned by a public body or by the project leader for the project from which the excess soil was excavated, or • Operated by the project leader for the project from which the excess soil was excavated
Contaminant of Concern (COC)	means one or more contaminants found on, in, or under a project area at a concentration that exceeds the applicable excess soil quality standards for the project area
Contaminant of Potential Concern (COPC)	includes a contaminant identified as potentially present on, in or under a project area in an assessment of past uses
Dry Soil	soil that is not liquid soil
EPA	Environmental Protection Act, R.S.O. 1990, c. E. 19
Excess Soil	soil, or soil mixed with rock, that has been excavated as part of a project and removed from the project area for the project
Excess Soil Rules	document entitled "Rules for Soil Management and Excess Soil Quality Standards" published by the MECP and dated December 29, 2022, available on the website of the Government of Ontario. as Part II of the document entitled "Rules for Soil Management and Excess Soil Quality Standards"
Excess Soil Regulation	Ontario Regulation 406/19 - On-Site and Excess Soil Management made under the EPA
Generic Excess Soil Quality Standards (ESQS)	means the following standards as described or provided in Part II of the Excess Soil Rules document entitled "Part II: Excess Soil Quality Standards": a) Table 1 "Full Depth Background Site Condition Standards"

	b) Tables for the "small volume excess soil quality standards" and c) Tables for the "volume independent excess soil quality standards"
Liquid soil	soil that has a slump of more than 150 millimetres using the Test Method for the Determination of "Liquid Wastes" (slump test) set out in Schedule 9 to Regulation 347
Leachate Screening Levels (LSLs)	values that are listed in the tables of Leachate Screening Levels within Part II – Excess Soil Quality Standards, contained in Appendix 2 of the Soil Rules document
MECP / MOE	the Ontario Ministry of the Environment, Conservation, and Parks (formerly the Ministry of the Environment)
MNDMNRF / MNRF	the Ontario Ministry of Natural Resources and Forestry and now includes Northern Development and Mines
Ontario Regulation 153/04 (O. Reg. 153/04)	Ontario Regulation 153/04 (Records of Site Condition – Part XV.1 of the Act) made under the Environmental Protection Act
Planning documentation	technical reports prepared in compliance with the Excess Soil Regulation and Excess Soil Rules including: a) Assessment of Past Uses (APU) (or Phase One Environmental Site Assessment, where applicable); b) Sampling and Analysis Plan (SAP); c) Soil Characterization Report (SCR); and d) Excess Soil Destination Assessment Report (ESDAR)
Potentially contaminating activity (PCA)	any activity listed in Table 2 to Schedule D of O. Reg. 153/04
Project Area	in respect of a project, a single property or adjoining properties on which the excavation project is carried out
Project Leader	the person or persons who are ultimately responsible for making decisions relating to the planning and implementation of the project
Qualified Person (QP)	A person meets the qualifications to be a qualified person if, a) The person holds a license, limited licence, or temporary license under the *Professional Engineers Act*; b) The person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practising member, temporary member, or limited member of the Association of Professional Geoscientists of Ontario a QP is someone who can exercise professional judgment based on their experience in order to advise on appropriate reuse options for the excavated excess soil, and make these decisions based on appropriate analysis and characterization of the soil
QP-C	Qualified Person acting on behalf of the construction contractor

QP-PL	Qualified Person acting on behalf of the Project Leader at the Project Area
QP-R	Qualified Person acting on behalf of the Reuse Site
Rationale Document	means the Rationale Document for Development of Excess Soil Quality Standards as developed by the MECP
Registry	has the same meaning as Part XV.1 of the Act. operated by the Resource Productivity and Recovery Authority (RPRA) for Excess Soil
Regulation 347	Regulation 347 of the Revised Regulation of Ontario, 1990 (General – Waste Management) made under the Environmental Protection Act. Amended by O. Reg, 558/00
Reuse Site	means a site at which excess soil is used for a beneficial purpose and does not include a waste disposal site
Sampling location	means an area of the property that does not have a radius larger than two metres, as defined in subsection 48 (4) of O. Reg. 153/04
small volume Excess Soil Quality Standards	same as the Soil, Ground Water and Sediment Standards for coarse textured soil (Tables 2 to 9) set out in O. Reg. 153/04
Soil Bank Storage Site	means a waste disposal site at which excess soil is managed on a temporary basis and that is operated, by a person who is not the project leader for all the projects from which the excess soil was excavated, for the primary purpose of storing the excess soil from one or more projects until the soil can be transported to a site for final placement or disposal
Topsoil	horizons in a soil profile, commonly known as the “O” and “A” horizons, containing organic material and includes deposits of partially decomposed organic matter such as peat (as defined in the Municipal Act)

2. INTRODUCTION

XCG Consulting Limited (now XCG, a division of Trace Associates Inc.) was retained by the Town of The Blue Mountains (the Town) to complete an Excess Soil Management Strategy (ESMS, the Strategy) for the Town operations using the proposed rehabilitation of the exhausted former aggregate extraction pit located along the northern portion of 788090 Grey Road 13 in The Town of The Blue Mountains, Ontario. The exhausted aggregate extraction pit, identified as the Collingwood Pit (described herein as the Town Pit), is anticipated to receive approximately 65,000 cubic metres (m^3) of excess soil from various Town infrastructure projects (Project Areas) over the next 5 years. The excess soil will be utilized to infill the exhausted Town Pit for the beneficial purpose of rehabilitation, with the ultimate objective of surrendering the Aggregate Resources Act (ARA) License (#4822) upon closure. Use of the Town Pit for excess soil management is being completed with a goal of saving Town resources and costs for infrastructure projects for the foreseeable future.

2.1 Overview

This ESMS provides a comprehensive strategy for the management of excess soil generated during Town infrastructure project and can be received and finally placed at the Town Pit.

The overall property is approximately 23.1 hectares and illustrated on Figure 1. Of the 23.1 hectares, approximately 10.1 hectares has been approved to operate as a solid waste disposal site identified as the Town of The Blue Mountains Solid Waste Disposal Site (Blue Mountains Landfill) under amended Environmental Compliance Approval (ECA) No. A261404, dated February 26, 2014, last amended June 1, 2017.

Since the submission of the original Site Plan to the ARA in 1990, 5.4 hectares of the Town Pit has been rehabilitated with the deposit of solid waste under the ECA identified above, with approximately 3.6 hectares of the Town Pit remaining to be rehabilitated. Of the 3.6 hectares of Town Pit remaining to be rehabilitated, the western portion of the former aggregate extraction area is planned for placement of excess soil as observed in Appendix C. As such, the Town Pit will be a “Reuse Site” for excess soil produced through Town infrastructure projects. The Town Pit will be registered as such on the Excess Soil Registry managed by the Resource Productivity and Recovery Authority (RPRA).

2.2 Scope Of Plan and Project

This ESMS aims to lay out the framework in how to evaluate and manage incoming excess soils and manage and placed at the Town Pit to ensure compliance with applicable legislation and best-management practices.

The ESMS specifically addresses the following:

- Legal / regulatory requirements, standards and guidelines;
- Overall excess soil management strategy for the Reuse Site;
- Administrative and engineering controls;
- Reporting and record keeping requirements;
- Contingency plans;
- Mandatory training required for all personnel prior to beginning work.

The Plan is based on consideration of the following documents:

- Specific requirements of applicable laws, regulations, guidelines, and other policies for the management of soil in Ontario;

- Summary of the findings of previous works completed by XCG including the document entitled "Site Assessment, Collingwood Pit, 788090 Grey Road 13, Town of The Blue Mountains," draft dated January 11, 2024, and the letter entitled "Application for Amendments to Rehabilitation Plan for the Class-A Aggregate Pit (#4822) located at 788090 Grey Road 13, Town of The Blue Mountains" dated July 11, 2023; and,
- Summary of the findings of the document entitled "Best Management Practices for Aggregate Pit and Quarry Rehabilitation in Ontario" produced by Ontario Society of Professional Engineers (S. Madeh Piryonesi, David Carnegie, and Lee Weissling) dated March 2021.

2.3 Regulatory Framework

Excess soil during the earthworks portion of the project will be completed in accordance with the following provincial regulations:

- Ontario Regulation (O. Reg.) 406/19 (as amended January 1, 2023) under the Environmental Protection Act (EPA) - Ministry of the Environment, Conservation, and Parks (MECP) On-Site and Excess Soil Management Regulation (Excess Soil Regulation); and,
  - A document adopted by O. Reg. 406/19 entitled "Rules for Soil Management and Excess Soil Quality Standards" (Excess Soil Rules) (as amended December 23, 2022).
- Ontario Regulation (O. Reg.) 153/04 (as amended March 19, 2021) under the Environmental Protection Act (EPA) – Records of Site Condition – Part XV.1 of the Act.
- Ontario Provincial Standards Specifications (OPSS) 180 – General Specification for the Management of Excess Materials.

2.3.1 Project Area Planning Activities

Under O. Reg. 406/19, as amended, there are a number of conditions where projects are required to register a project area on the RPRA Excess Soil Registry (per Section 8). In general, these conditions include (all three to be met):

- The project area or a portion, is located in an area of settlement;
- The volume of excess soil to be generated is 2,000 m3 or more; and
- Provided the project area most recent use was something other than for residential, institutional, parkland, or agricultural purposes (as defined in O. Reg. 153/04).

There are two main exemptions for infrastructure projects:

- Excavation of soil for the purposes of maintaining the infrastructure in a fit-state-of-repair; and
- Where the excess soil will be reused on another infrastructure project owned by the project leader or a public body.

For projects that are identified as having to file a Project Area Notice on the Excess Soil Registry, there are a series of planning documents and requirements (Sections 11 to 18). These include:

- Assessment of Past Uses (APU);
- Sampling and Analyses Plan (SAP):
- Soil Characterization Report (SCR);
- Excess Soil Destination Assessment Report (ESDAR); and

- Soil Tracking and Hauling Records.

Specific details of each of the above planning documents and requirements are outlined in the Excess Soil Rules. It is noted that Hauling Records are to accompany all loads of excess soil, whether the Project has a notice entered in the Registry or not.

At a minimum, for any project the reuse site will most likely require some soil characterization to base the decision to accept the excess soil or not. This may or may not include the preparation of an APU but should include documented rationale for sampling and analyses and a copy of the analytical results with comparisons to the various applicable Excess Soil Quality Standards. This information should be reviewed by a Qualified Person on behalf of the Reuse Site owner to determine acceptability for reuse. Further, written acceptance from the reuse site owner should be received prior to any excess soil shipment to the reuse site.

For Town infrastructure projects that are planning to send excess soil to the Town Pit, the soil quality must meet the acceptance criteria. The acceptance criteria and approval procedures are further discussed in this document.

3. TOWN PIT SOIL MANAGEMENT

3.1 Acceptance Standards

In December 2019, the Ontario Ministry of the Environment, Conservation and Parks (MECP) released Ontario Regulation (O. Reg.) 406/19: *On-Site and Excess Soil Management* (Excess Soil Regulation) and the adopted document *Rules for Soil Management and Excess Soil Quality Standards* (Excess Soil Rules) under the Environmental Protection Act, R.S.O. 1990, c. E. 19. There have been a number of amendments to the Regulation and Rules since the original enacting in late 2019. Further amendments are proposed and expected to be released in spring 2024.

The Excess Soil Regulation and Excess Soil Rules outline the requirements for characterization and relocation of soils that become excess to a project through excavation. In order for excess soil to be reused in accordance with the Excess Soil Rules and Regulation, concentrations of specific contaminants in excess soil must be lower than a specified concentration, which are outlined in a series of comparison standards. The MECP has integrated several new sets of comparison standards to determine soil quality at a source site (Project Area), identified as the Excess Soil Quality Standards (ESQS). In addition to the ESQS, leachate screening levels (LSLs) were implemented into the Excess Soil Regulation and associated Excess Soil Rules. Each set of ESQS values corresponds to a set of LSL standards (outlined in Appendix 2 of the Excess Soil Rules).

In line with the current and future anticipated use of the overall property as a solid waste disposal site, excess soil to be imported to the Town Pit will be compared to the subset of ESQS and LSL standards for “Industrial, Commercial, and Community Use (ICC)”.

3.2 “Layer-Cake” Approach to Pit Rehabilitation

A document entitled “Best Management Practices for Aggregate Pit and Quarry Rehabilitation in Ontario” developed by the Ontario Society of Professional Engineers (March 2021) was referenced as it presents a set of best management practices (BMPs) for the rehabilitation of pits and quarries in Ontario by backfilling with excess soil. The BMPs recommend consideration of a “layer-cake” approach to site rehabilitation, which may allow for placement of soil meeting one or more generic volume independent ESQS and LSL under certain conditions. By utilizing the “layer-cake” approach, the Town can be flexible with the quality of excess soil that can be accepted as backfill depending upon the quality of excess soil generated during Town infrastructure projects, at the time. The following collection of generic volume-independent ESQS and LSL will be used for excess soil quality comparison and will form the “layers” of the “cake” as shown in the cross-section in Appendix C. The Standards for all regulated contaminants of concern are presented in Appendix D as the Site-Specific Acceptance Standards for the proposed layers, as described below.

Table 1: Background Site Condition Standards (Table 1 SCS)

In attempts to align with O. Reg. 406/19, the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) amended Ontario Regulation 244/97 under the Aggregate Resources Act, R.S.O. 1990, c. A.8, on January 1, 2023. Some of the changes include permitting the application of ESQS outside of the automatic application of *Table 1: Full Depth Background Site Condition Standards* outlined in the Excess Soil Regulation provided a QP has reviewed the site setting and specified future of the property on the approved Rehabilitation Plans for the licensed operation. It is noted that Table 1 SCS is the most stringent Standards and are representative of the background concentrations in Ontario. Table 1 SCS are the defined Standards for any excess soil that is placed at or below the saturated groundwater bearing zone in pit rehabilitation.

Table 2.1: Full Depth Excess Soil Quality Standards (ESQS) in a Potable Groundwater Condition (Table 2.1 ESQS)

If no other reuse site-specific conditions dictate otherwise, Table 2.1 ESQS are to be applied when the reuse site and the properties within 250 metres of the reuse site are not serviced by a municipal drinking water system, and instead through potable drinking water wells.

Excess soils with quality meeting the Table 2.1 ESQS are to be backfilled within the final 0.5 metres of the final grade. Of this 0.5 metres of soil meeting Table 2.1 ESQS, topsoil in a thickness of 0.3 metres will be applied as a cap, with 0.2 metres of mineral soil placed below. Soil meeting Table 1 and Table 6.1 ESQS can be placed in this layer.

Table 6.1: Full Depth ESQS for Shallow Soils in a Potable Groundwater Condition (Table 6.1 ESQS)

Table 6.1 ESQS are typically applied in situations where groundwater is present within 3 metres below ground surface (bgs) or when bedrock is present within 2 metres of the surface (overburden is less than 2 metres in thickness). As excess soils will be placed within 2 metres of the elevation of the maximum recorded groundwater levels, comparing the backfill to Table 6.1 ESQS is interpreted to be protective of groundwater resources. Table 1 quality soil can be placed in this layer.

Table 4.1: Stratified ESQS in a Potable Groundwater Condition for Subsurface Application [Table 4.1 ESQS (for subsurface soil)]

Comparing excess soil to the subsurface subset of standards presented in the Table 4.1 ESQS are considered to be the least stringent approach to excess soil acceptance. Table 4.1 ESQS can only be used for comparison for soils located a minimum of 1.5 metres below final grade and should not be placed within 2 metres of the elevation of the maximum groundwater table. As such, excess soils meeting only Table 4.1 ESQS cannot be used in place of soils meeting Table 1 SCS, Table 2.1 ESQS, and Table 6.1 ESQS.

As a summary for the purpose of soil placement:

- Soil that meets Table 1 can be placed in any layer;
- Soil that meets Table 6.1 ESQS can be placed in layers that have been identified as Table 2,1 ESQS or Table 4.1 ESQS;
- Soil that meets Table 2.1 ESQS can be placed in the Table 4.1 ESQS layer; and
- Soil that meets Table 4.1 ESQS only need to be placed in the Table 4.1 ESQS layer.

It is also noted that soil that meets the above noted Standards but has electrical conductivity (EC) and/or sodium adsorption ratio (SAR) that exceeds the applicable Standard and is deemed to be the result of salt application from winter maintenance can be received for final placement provided it is placed at a depth of greater than 1.5 metres below the final ground surface. It is also noted that soil that exceeds Table 1 or Table 6.1 ESQS for EC and/or SAR should not be placed within 1.5 metres of the highest groundwater elevation.

A receiving decision flow-chart to assist in the acceptance or rejection process has been prepared and is presented in Appendix D.

For excess soil generated during Town infrastructure projects and does not meet one of the soil quality categories listed above, the excess soil will need to be relocated to an alternate reuse site or sent for appropriate disposal at a Class 1 soil management site or licensed landfill.

4. ACCEPTANCE PROCEDURES

As outlined in the Excess Soil Regulation and Rules, the Project Leader (Town of The Blue Mountains) of a Reuse Site must sign a declaration confirming the following procedures have been considered prior to the movement of excess soil:

- For each load of excess soil deposited, the location from which the excess soil was transported from has been identified;
- Ensuring that all relevant reports and information with respect of the excess soil to be deposited at the Reuse Site are obtained by the owner or operator of the Reuse Site before the excess soil is deposited;
- Ensuring each load is inspected by the owner/operator of the Reuse Site (or a person acting on the owner/operator's behalf) and the load is consistent with any reports and information; and
- Final placement of excess soil at the Reuse Site does not cause an adverse effect[1].

Given the above requirements, the QP for the infrastructure for the Town is to describe how the excess soil will fit into the Reuse Site and in which layer. Further, where this is not easily accomplished, the Town may retain a Qualified Person, referred to herein as QP-R (Qualified Person for Reuse Site), to assist in implementing the following procedures throughout the life of the rehabilitation. The QP-R will review the details available for each project area and, as necessary, will facilitate discussions with the other QPs involved in the Project Area (for the Town at the infrastructure project, or for the contractor). Costs for QP-R review will be charged back to the infrastructure project by the Reuse Site.

4.1 Source Information Inquiry

Should the Town identify a Project Area with excess soil potentially suitable for use as backfill during the Town Pit Rehabilitation, a representative of the Town Pit should first request the following from a representative at the Project Area (source site):

- Any relevant planning documentation for excess soil proposed to be transferred to the Town Pit from the Project Area including:
  - Assessment of Past Uses (APU) (or Phase One Environmental Site Assessment, where applicable);
  - Sampling and Analysis Plan (SAP); and
  - Soil Characterization Report (SCR);
- OPSS 180 Forms created by the Project Area contractor/QP for acknowledgement and written acceptance;
- Information regarding the quantity of excess soil to be transported to the Town Pit;

[1] Adverse effect is defined in the Ontario Environmental Protect Act as:

- Impairment of the quality of the natural environment for any use that can be made of it;
- Injury or damage to property, plant, or animal life;
- Harm or material discomfort to any person;
- An adverse effect on the health of any person;
- Rendering any property or plant or animal life unfit for human use;
- Loss of enjoyment of normal use of property; and
- Interference with the normal conduct of business.

- Information regarding tracking system/software utilized by the Contractor moving the excess soil (if available);
- Anticipated date of arrival of the excess soil; and
- Information regarding where on the Project Area the soil will be excavated from (vertical depth and location).

The information listed above will be provided in a digital format to the Town Representative for the Town Pit or QP-R for review and confirming the soil quality meets the acceptance standards for the Town Pit. Should the provided information satisfy the acceptance requirements and that the excess soil will be accepted in accordance with the Excess Soil Regulation and Rules, written documentation of acceptance will be provided on the OPSS 180 Forms supplied for the Project Area. Once it has been established that the soil meets the quality standards for reuse, and when the excess soil will be received, arrangements for the on-site temporary stockpiling or direct placement will be made.

The information received at the Source Information Inquiry and reviewed by the QP-R will be documented in a *Standard Form* (refer to Appendix E) and provided to the Town Pit for file retention. A unique *Project Area Profile Number (PA Number)* will then be created and issued to the Project Area, for both tracking purposes and administrative correlation to the *Standard Form*.

The timeline from Source Information Inquiry to the commencement of excess soil hauling can vary between 2 and 10 business days, given the varying levels of communication required between Project and Town stakeholders and availability of the QP(s) for discussion. To facilitate

4.2 Record Keeping

The Town Pit Representative and/or Pit QP-R will establish a digital database for all information associated with excess soil received at the Town Pit, including but not limited to:

- All information collected during the Source Inquiry process (including the fully filled out Standard Review/Acceptance Form);
- Daily quantities and dates of excess soils received, including soil type, time of arrival, PA Numbers;
- Itemized records of rejected excess soils;
- Public complaints associated with the operation of the Reuse Site; and
- Documentation of environmental and other problems experienced in operating the Town Pit.

4.3 Receiving Excess Soil

The northern and southern perimeters of the overall Town Pit facility is fenced, and the access road is controlled by a gate located on County Road 13. The facility gate is locked during non-operating hours. Low level lighting is maintained at the scale house and equipment storage at all non-daylight hours.

All vehicles entering the Reuse Site are required to drive over the weigh scales and receive instructions from the Scale House attendant and/or flag-person prior to off-loading the excess soil. The Scale House attendant will request the PA Number and confirm the excess soil has been approved for receipt. Upon arriving at the weigh scale, in keeping with the Excess Soil Regulation and Rules, the weigh-scale attendant will request access to the digital or paper copy of the hauling record, which is to include:

- The location at which the excess soil was loaded for transport (including location within the Project Area by Universal Transverse Mercator (UTM) coordinates);
- The date and time the excess soil was loaded for transportation;
- The estimated quantity of excess soil in the load;
- The name of the individual who may be contacted to respond to inquiries regarding the load, including inquiries regarding the soil quality; and
- The name of the corporation, partnership, or firm transporting the excess soil, the name of the driver of the vehicle and the number plates issued for the vehicle under the *Highway Traffic Act*.

Through appropriate scheduling, the weigh-scale attendant will be anticipating the arrival of the excess soil load and following the intake of the above information, inspection, and will direct the vehicle to the appropriate off-loading location (dumping area) for inspection and off-loading.

Upon arrival at the appropriate off-loading location (dumping area), located east of the Rehabilitation Zone as observed in Figure 1, the vehicle will be met by the flag-person/Pit Attendant. During off-loading, the flag-person/Pit Attendant will complete a visual and olfactory inspection of the incoming load to screen for odour, visible staining, or unexpected debris. Should the inspection yield concerns, the off-loading will be stopped, reloaded and/or set aside in quarantined area for appropriate return to the Project Area or re-directed to another appropriate location, and rejected [see rejection procedure (Section 4.5)]. The vehicle will be directed back to the scale to be re-weighed, which will be documented in the PA Number. Following the receipt and documentation of all applicable information, the flag person and/or Scale House attendant will provide a receipt declaration on behalf of the Source Site Project Leader prior to their departure stating acknowledgment of the deposit of excess soil at the Town Pit.

Following the final load deposited from a specific PA Number, the Town Representative or QP-R will provide a summary to the Project Leader at the Project Area (or designate), confirming the excess soil was received at the Reuse Site and that the type, quality, and quantity corresponded with information provided during the acceptance process.

4.4 Audit Sampling Procedures

Although the excess soil to be received at the Town Reuse Site will be generated from Town infrastructure projects, audit samples may be collected from the received excess soil load to confirm the quality of the soil corresponds with quality indicated in the planning documentation. The quantity of audit samples applicable to each PA Number are to be established to produce results that would be representative of the volume of excess soil that is being received from an individual PA Number and are outlined as such:

- One sample obtained during the first 2,500 m^3 or less deposited; and
- One sample obtained for every 2,500 m^3 thereafter (i.e., 5,000 m^3, 7,500 m^3, 10,000 m^3, etc.).

Audit samples will be collected by the QP-R (or supervisee) subcontracted by the Town and will be submitted to a laboratory holding a Canadian Accredited Laboratory Association (CALA) approval for analyses. All chemical analyses will be performed in accordance with the O. Reg. 153/04, and specially the related document “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act,” dated March 9, 2004 (amended as of February 19, 2021).

Sample collection procedures will comply with procedures outlined in the Excess Soil Rules and the Ministry of the Environment, Conservation, and Parks (MECP) sampling protocols as described in the document entitled “Guidance on Sampling and Analytical Methods for Use at

Contaminated Sites in Ontario, December 1996," and the Standard Operating Procedures established by the QP-R.

The audit samples will be analyzed for the minimum chemical parameters established in the Excess Soil Rules and include:

- pH, electrical conductivity (EC), and Sodium Adsorption Ratio (SAR);
- Metals and hydride-forming metals (antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, uranium, vanadium, and zinc);
- Petroleum hydrocarbons fractions F1 to F4 [PHCs (F1-F4)] including benzene, toluene, ethylbenzene, and xylenes (BTEX); and
- Any other potential contaminants of concern (COCs) identified in the source soil documentation and identified during the initial review and indicated on the PA Acceptance form.

Analytical results of the audit samples will be reviewed by the QP-R and a brief review memorandum document will be prepared for internal file retention. If the reported analytical results meet the Acceptance Standards, no further actions are needed until the next audit sampling volume threshold is approached. The QP-R will be responsible for ensuring the audit threshold is not exceeded and should therefore have access to the PA Number database on an ongoing basis.

4.5 Reassessment and Rejection Procedures

Should the reported analytical results from the audit sampling exceed the Acceptance Standards under which they were initially accepted under (as documented in the PA Number), receiving of the source soil will be immediately discontinued. The QP-R will promptly collect additional soil samples from the stockpiles generated during the delivery of excess soil from which the audit sample was collected. Depending upon the volume of soil received, additional samples will be collected in quantities at three times the audit sample frequency requirements, with the financial burden falling to the Project Leader at the Project Area. Should the supplementary audit sample results indicate the excess soil meets an alternative Acceptance Standard, the entirety of the soil from the PA Number will be relocated to appropriate lane in pre-placement stockpile, and the PA Number details will be updated to reflect the change.

Should the supplementary audit samples fail to meet any Acceptance Standards, the subject stockpile will be quarantined, and the soil will be redirected to another receiving or waste disposal site that is approved to receive soil of the outlined quality. The cost, approval, and responsibility for redirection will be the responsibility of the Project Leader at the Project Area. Quarantined excess soils will not be located for final placement as part of the rehabilitation and will be removed from the site as quickly as possible provided an alternate location can be arranged by the Project Area Contractor.

5. INFILL OPERATIONS

5.1 Excess Soil Placement Below Maximum Water Table

Groundwater levels have been obtained on a semi-annual basis during the spring and autumn seasons, since 1999, in some locations. Monitoring wells at locations BH21 and BH34 were of particular interest given the proximity to the Town Pit. Maximum water levels were reported to reach 223.29 masl (May 2017) and 221.65 masl (May 2019) at the locations of BH21 and BH34, respectively. To take a conservative approach, water levels in the vicinity of the Town Pit were interpreted to meet a maximum elevation of *223.29 masl* (as observed at BH21).

Given the reported maximum groundwater elevation and the potential presence of groundwater or stormwater along the Town Pit bottom, it proves necessary to place excess soil (meeting Table 1 SCS) below the highest potential water table in the Town Pit. The natural flow of groundwater may be disrupted by altering conductivity if backfilling material of a different permeability than the surroundings. Additionally, the turbidity of the surrounding groundwater may increase, manifesting as elevated total suspended solids (TSS) and total dissolved solids (TDS). As such, the following approaches should be considered to minimize physical impacts on groundwater flow:

- Backfilling the base of the Town Pit with excess soil below the water table during seasonal low elevations.
- Backfilling with free draining granular material prior to the peak water table season.
- Building impoundment berms across the pit at multiple locations. The space between these berms will be filled with water and they will act as small dams and regulate the water table.
- Undertaking the placement of excess soil gradually. Monitoring wells in the area of the infilling (BH21 and BH34) should be monitored for signs of turbidity. The operation must stop immediately if significant turbidity increases are observed in peripheral monitoring wells.

5.2 Rehabilitation Activities

As illustrated in the Proposed Rehabilitation Plan presented in Appendix C, excess soil that is generated in Town infrastructure projects and meeting the acceptance Standards for the Town Pit will be imported for the rehabilitation activities. Soil that does not meet the acceptance Standards will be declined for acceptance and redirected to another appropriate facility.

Soil that meets one of the acceptance Standards, will be imported and either temporarily stockpiled until placed in the rehabilitation area, or placed direct in the appropriate area of the rehabilitation area. It is noted that depending on the soil quality and what acceptance Standard the soil meets, stockpiling may need to be completed until an appropriate layer is accessible for placement. It is also noted that excess soil that meets a less stringent acceptance Standard can be placed in that that less stringent layer (i.e., Table 1 quality soil can be placed in Table 2.1, Table 4.1, and Table 6.1 quality layers). It is noted that generic Standards in Table 3.1, Table 5.1, Table 7.1 are for non-potable groundwater use areas and are not applicable for reuse at the Town Reuse Site given the rural setting. In general, the most stringent Standard is Table 1, followed by Table 6.1, Table 2.1, and then Table 4.1 subsurface (>1.5 metres depth); however, the soil quality should be confirmed against the acceptance Standards for any specific layer to ensure the quality meets the corresponding Standard for placement.

Temporary stockpiling will be accomplished within the Town Pit excavation and appropriately labelled with a sign and marked on a site plan. The source of the stockpiled excess soil will

also be recorded for future reference, if needed. Stockpiles will be maintained in compliance with the appropriate Rules (as outlined in the Soil Rules).

Once the appropriate layer for soil quality is available, stockpiled soil will be placed using appropriate excavation, grading and/or dozer equipment. Opportunities for equipment and operators using existing Town resources may dictate the timing for layer construction.

It is noted that the infrastructure project will need to account for the cost of soil haulage and final placement of the excess soil into the layers (stockpiling, movement to final placement, grading, compaction, etc.). If storage space or final placement capacity reaches a maximum for a specific layer or soil quality Standard, the excess soil must be redirected to another site, or efforts are to be made to create final space for final placement. The efforts will be the responsibility of the infrastructure projects generating the excess soil.

Soil with quality that meets a less stringent Standard (i.e., Table 4.1 versus Table 1) will not be placed in an inappropriate layer but will be temporarily stockpiled until room in an appropriate layer is available.

As previously identified, the proposed rehabilitation plan will require approximately 65,210 m^3 of excess soil, providing up to approximately 5 years of capacity for estimated 10,000 to 15,000 m^3 of annually generated excess soil from Town infrastructure projects.

Approximate elevations of each layer have been provided for Town use during fill placement. Estimated volumes of each soil quality layer is as follows:

- Table 1: 14,565 m^3;
- Table 2.1: 6,515 m^3;
- Table 4.1: 27,360 m^3; and
- Table 6.1: 16,740 m^3.

6. FACILITY OPERATIONS

6.1 Site Signage and Security

To accommodate standard construction schedules that will be generating excess soil that may be destined for the Town Pit, the facility gates to the facility may be open and scale-house operations may be available outside the public waste receiving days and hours outlined on the ECA for Blue Mountains Landfill (and posted on the entrance signage). Receiving at the Town Pit will be generally restricted to 7:00 am to 7:00 pm.

Signage is clearly posted indicating the following:

- Private Waste Hauler and Public receiving days and hours for the Landfill Site:
- Operating Authority: The Town of The Blue Mountains;
- Contact Information (i.e., telephone number for emergencies, complains and general inquiries); and
- Open or closed.

Various traffic signs have previously been installed to optimize the flow of traffic in and around the existing waste disposal site, including information signs to assist patrons at segregating waste and recyclables. Security for the site is provided with fencing around the full perimeter of the site and gates at the site entrance that are locked during non-operational hours. The majority of the property is lined with mature trees to provide visual barriers, dust management, and to further limit access to the property.

6.2 On-site Traffic Management

Although vibration during the rehabilitation phase is considerably lower than the vibration caused by extraction of aggregate material, the vibration by hauling trucks and other heavy equipment may be of concern to neighbours. Given the presence of the solid waste disposal site already established at the property, and minimal nuisance complaints have been filed to date, on-site traffic is not considered to be of significant concern. This is based on current average daily visits to the facility of over 130 visits per day of operation (over 20,000 visits annually).

Appendix F contains an On-site Traffic Management Plan that was prepared for the Town Pit.

As the Town infrastructure projects are expected to be generating loads of excess soil during all weekdays during the typical construction season (April to November 30th), consideration has been given to the volume of heavy vehicles currently entering the property each operating day and whether significant impacts to overall traffic flow will be realized (based on an estimated 13,000 m^3 of excess soil imported annually with each triaxle having a hauling capacity of 10 m^3, equalling up to 1,300 additional visits annually or approximately 10 additional trucks/day of construction season operation).

6.3 Dust Management

Heavy truck and equipment movement and soil handling have the potential to generate dust. During hot dry days, particularly in the summer, the control of dust generated from heavy trucks driving on-site can become a concern. Excessive dust can cause reduced visibility, nuisance, and health-related impacts to on-Site personnel and has the potential for off-site impacts under windy conditions.

To control dust generated by on-site traffic and soil haul trucks, the Town will continue to apply a calcium solution (application rate of approximately 3,000 litres/km and 35% calcium chloride content) or clean water (water truck) to the gravel access road from County Road 13 to the weigh scale, including the gravel areas around the operations building and access roads into

the Town Pit. During hot and dry periods, strict adherence to the on-site speed limits will be upheld by site operations staff to minimize the potential for dust emissions. The point of egress from the unpaved active fill areas should be constructed with mud mats of coarse stone to remove mud from transport vehicles tires before exiting the facility on the crushed asphalt driveway/access road.

To control dust generated by earthwork activities, wetting of the working surfaces with clean water from a water truck should be undertaken through direction from the Pit attendant on an as-needed basis. Water application can be limited to avoid slippery or erosive conditions but must be of sufficient quantity and frequency to prevent excessive dust generation. Dust emissions from the north side of the Town Pit will also be minimized by the existing well-established mature trees along the north property boundary.

Dust emissions from the property is also minimized by the existing well-established mature trees along the property boundaries.

6.4 Snow Control

For snow control during winter months, appropriate planning will be undertaken, and when deemed necessary, the Town will continue to apply winter sand across a 700-metre section of access roads, which extends from Grey Road 13 to the scale house and includes access road leading to the east and west haul roads (leading to the Town Pit). The current application rate of the winter sand is 300 kg/km and 3% salt content, with an estimated annual total for salt currently projected at approximately 252 kilograms of salt. West and east haul roads, approximately 160 metres and 50 metres in length, respectively, may also require winter sand application, for a total of 910 metres requiring winter sand application. As such, the estimated annual total for salt, including the east and west haul roads, is approximately 328 kilograms.

6.5 Noise Management

It is inferred the Town Pit will only receive excess soil from local municipal infrastructure projects generated within the geographical boundaries of the Town. Therefore, a significant increase in the incoming vehicular traffic is not anticipated but may occur outside the current facility operating hours (but during normal business hours).

The Town Pit is located in the north-central portion of the overall property. The closest residents are located approximately 500 metres west and northwest of where the fill placement will take place. Soil berms along the western and northern property boundaries already exist to separate the Town Pit and the residences to the west and northwest. In addition, the lands to the east, west, and south of the Town Pit are currently used for Town landfill and recycling operations.

All on-site construction equipment will be maintained with appropriate noise control devises (mufflers, back-up warnings etc.). If the noise control devices for on-site equipment is determined to not be operating properly, the equipment will be taken out of service until it can be repaired. Much of the fill activities will be occurring within the former excavated area and partially below the original ground surface which will assist in containing normal construction equipment noise.

Excess Soil importation and placement will only be undertaken during weekdays and normal business hours (i.e., 7:00 am to 7:00 pm) to prevent potential noise impact during the evening, night, or early morning and holidays. If noise complaints are received, an evaluation of the potential mitigation options will be undertaken and employed as necessary.

6.6 Mud Tracking and Snow Clearing Maintenance

During wet conditions specifically in the early spring and fall, trucks have the potential to track mud from the working area to the access roads or the paved County Road 13. Monitoring of conditions of on-Site roads and the paved roads will be completed during operational days by

the Town. A road sweeper will be used on County Road 13 at the access to the Site to prevent slippery conditions on the public roads.

Where mud tracking from the Town Pit is noted to be occurring, a mud-mat will be considered and strategically constructed on the access roadway to and from the Pit.

6.7 Invasive Species

The Invasive Species Act (Government of Ontario 2015) in Ontario defines invasive species as a "species that is not native to Ontario, or to a part of Ontario." Some invasive species of particular interest in Ontario are:

- European fire ants;
- Russian olive;
- Japanese knotweed;
- Phragmites;
- Giant hogweed;
- Garlic mustard;
- Wild chervil;
- Dog-strangling vine; and
- Certain species of nematodes.

The following best practices are recommended through different stages of rehabilitation to mitigate adverse impacts arising from invasive species:

- Pursue getting confirmation documentation from the Project Area (soil sources) identifying no potential for invasive species;
- Soils (particularly topsoil) with a history of a nematode problem, or other invasive species, should be either avoided or sampled when imported to the Reuse Site;
- Identify any occurrences of invasive plant species before beginning any expansion of the operations, such as tree removal or movement of brush (organic matter) or soil and placing the invasive plant species in the Town Landfill or compost, or controlled burn; and
- Report the identified invasive species to the MNRF.

When invasive species have been suspected to have been transferred to the Town Pit, the source supply of the excess soil will be immediately discontinued, and appropriate mitigation measures will be undertaken per recommendations in the Invasive Species Act, unless the removing of invasive species for disposal at the adjacent landfill is part of the management method.

6.8 Stormwater Management

A drainage ditch is located southeast of Stage 'A' of the overall facility, along the main access road. The ditch conveys surface water run-off away from the landfill areas and conveys it north of the landfill cell towards Indian Brook, located east of the overall site. A stormwater drainage system is also present within the compost area west of Stage 'A', with a stormwater management pond located at the southeast corner. Drainage within the Town Pit is mainly through vertical infiltration. There are no apparent springs on the site and the pit bottom was reported to remain dry year-round, with the exception of during spring when temporary ponding occurs (observed May 2023).

Where possible, surface grading to promote containing stormwater to the subject property will be made. As there are no significant paving or other impermeable surfaces on-site, infiltration to subsurface is expected.

6.9 Erosion and Runoff Control

All accepted excess soil will be managed within the exhausted pit excavation and erosion and runoff will be maintained within the active pit excavation. Finished grades have been established that should minimize erosion and runoff once vegetated.

Periodic review of erosion and evidence of runoff will be completed by facility management, with repairs completed as required.

6.10 Soil Placement/Segregation

Soil will be progressively placed in the "layer-cake" method depending on the fill quality when compared to the appropriate Standards for acceptance (i.e., Table 2.1, Table 4.1, and Table 6.1). Placement of soil will be under the direction of the site operator or designate.

In order to identify where fill is placed, a "placement cell" identification system has been established as shown in Appendix G. Upon receipt of the fill, each load will be recorded as to what quadrant/sub-cell of which main cell the fill was placed and recorded with UTM coordinates (to align with requirements of O. Reg 406/19, as amended and O. Reg. 395/22).

When received soil is found to not meet the acceptance criteria, the fill will be segregated/cordoned off from the active fill area until positive re-sampling results are received, or rejection actions have occurred, and the soil sent to an appropriate treatment/disposal site.

6.11 Placement Timing and Equipment

It is anticipated that stockpiles of unique excess soil sources and qualities will be accumulated over the construction season. Final placement of the stockpiles is anticipated to be completed in the fall annually. The fall catch-up activities are planned in order to minimize the resources required to complete the final placement such as equipment and operators that are not currently apportioned to the Town Pit. The fall catch-up activities are compliant with the O. Reg. 406/19 requirement for final placement within 2-years of receiving and stockpiling at reuse sites.

It is anticipated that equipment (and appropriate operators) required for final placement of stockpiled soil may include:

- Excavator/Loader;
- Dump-Truck;
- Bull Dozer; and
- Sheep's-Foot Roller/Packer.

In addition, elevation surveying to establish layers per the design will also be needed.

7. DOCUMENTATION AND RECORD KEEPING

All documents prepared from the facility operation will be managed through electronic filing maintained by the Town and/or the QP for the Town Pit, and any hard copies maintained in filing cabinets in the site office (scale house).

Records maintained will include (but not limited to):

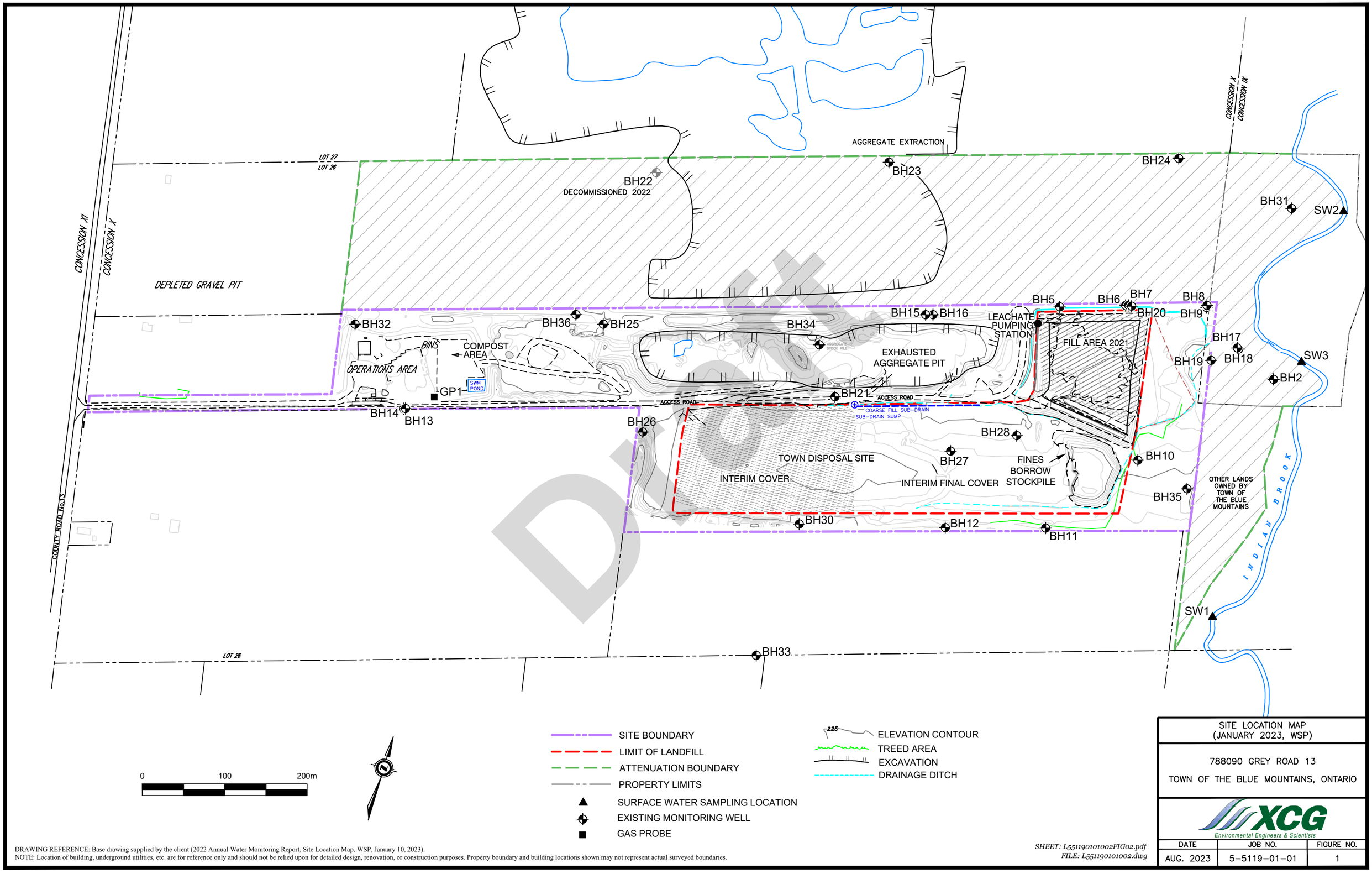
- Application documentation from source sites;
- QP Review documentation and acceptance notifications;
- Load Summaries by Project Area;
- Soil Tracking System Records and Hauling Record documentation;
- Load Placement Records;
- Audit Sampling Results;
- Complaint Records and Follow up Notices;
- Daily Operation Logs;
- Rejection Logs;
- Documentation and Communication with MECP, MNDMNRF, Grey County; and
- Consultant groundwater monitoring reports (related to Waste Disposal Site).

All records created or maintained for The Town of The Blue Mountains operations are to be maintained for a minimum of seven years (as per O. Reg. 406/19, as amended).

8. LIMITATIONS

The scope of this Excess Soil Management Strategy is limited to the matters expressly covered. This document is prepared for the sole benefit of The Town of The Blue Mountains and may not be relied upon by any other person or entity. Any use or reuse of this document (or the findings and conclusions represented herein), by parties other than those listed above, is at the sole risk of those parties.

FIGURE



DRAWING REFERENCE: Base drawing supplied by the client (2022 Annual Water Monitoring Report, Site Location Map, WSP, January 10, 2023).
NOTE: Location of building, underground utilities, etc. are for reference only and should not be relied upon for detailed design, renovation, or construction purposes. Property boundary and building locations shown may not represent actual surveyed boundaries.

SHEET: L551190101002FIG02.pdf
FILE: L551190101002.dwg

SITE LOCATION MAP
(JANUARY 2023, WSP)

788090 GREY ROAD 13

TOWN OF THE BLUE MOUNTAINS, ONTARIO

XCG
Environmental Engineers & Scientists

DATE	JOB NO.	FIGURE NO.
AUG. 2023	5-5119-01-01	1

APPENDIX A
ARA LICENCE #4822

Ontario

Ministry of Natural Resources / Ministère des Richesses naturelles

LICENCE
Aggregate Resources Act

Licence No. / No du permis 4822

PERMIS
Loi sur les ressources en agrégats

Amended Licence

Pursuant to the Aggregate Resources Act and Regulations thereunder, and subject to the limitations thereof and to the conditions of the licence and the requirements of the site plan,

Conformément à la Loi de 1997 sur les ressources en agrégats et à ses règlements, et sujet aux restrictions qu'ils comportent, aux conditions d'octroi du permis et aux exigences du plan du site,

this Class licence is issued to:
nous délivrons ce permis de classe: **A** à:

THE TOWN OF THE BLUE MOUNTAINS
26 Bridge St.
Box # 310
Thornbury, ON
CANADA
N0H 2P0

to operate a Pit on a 16.8 hectare site located in:
pour exploiter un/une Pit sur le terrain de 16.8 hectares situé à l'endroit suivant:

Lot	Concession	Section	Geographic Township	Local Municipality	County / Regional Municipality / District
26	10		COLLINGWOOD	BLUE MOUNTAINS T	GREY CO

The licence is subject to the following conditions:
Ce permis est assujetti aux conditions suivantes:

As shown on attached Schedule "A".

Effective the 25 day of January , 2002
En vigueur le jour de

District Manager
Gérand du District

SCHEDULE "A"

Licensee: ***The Town of The Blue Mountains***

Licence #: ***4822***

It is a condition of this licence that no more than **100,000 tonnes** of material shall be removed from this licensed site in any one calendar year.

APPENDIX B
ORIGINAL SITE PLANS FOR PIT

NOTES

1. THE FINAL LIMITS OF EXTRACTION AND FINAL DEPTHS OF EXCAVATION AS SHOWN ARE SCHEMATIC ONLY AND MAY CHANGE DEPENDING ON ROAD MAINTENANCE AND CONSTRUCTION REQUIREMENTS, BUT WILL NOT EXCEED THOSE ILLUSTRATED.
2. THE AREA TO BE LICENSED IS 16.8 HECTARES. AREA OF EXISTING EXCAVATION IS 7 HECTARES OF WHICH APPROX. 4.6 HAS BEEN PARTIALLY REHABILITATED BY LANDFILLING. THE AREA TO BE EXTRACTED IS 13.4 HECTARES. THE EXTRACTION AREA IS CURRENTLY A PRODUCING APPLE ORCHARD.
3. THE EXISTING POST AND WIRE FENCING (1.2 m HEIGHT) WILL BE MAINTAINED OR UPGRADED TO THE SATISFACTION OF THE MINISTRY OF NATURAL RESOURCES AND SHALL REMAIN THROUGHOUT THE LIFE OF THE PIT.
4. THE NATURAL VEGETATION THAT WILL PROVIDE TREE SCREEN IN THE BUFFER STRIP CONSISTS OF DECIDUOUS (MAPLE) AND APPLE TREES.
5. EXTRACTION WILL CONTINUE IN STAGE "A" IN A WESTERLY DIRECTION AS SHOWN ON THE PLAN. WHEN STAGE "A" HAS BEEN MINED TO THE SETBACKS, EXTRACTION WILL COMMENCE IN STAGE "B" AS SHOWN. IN ANTICIPATION OF LANDFILLING OPERATIONS TO FOLLOW THE SEQUENCE OF EXTRACTION, A 30 METRE SETBACK ADJACENT TO THE PROPERTY LINES WILL BE MAINTAINED AROUND THE BALANCE OF THE AREA TO BE EXTRACTED. SHOULD THE CURRENT MINISTRY OF THE ENVIRONMENT CERTIFICATE OF APPROVAL LAPSE OR BECOME VOID, EXTRACTION WILL CONTINUE UP TO THE 15 METRE SETBACKS.
6. TOPSOIL AND OVERBURDEN WILL BE STRIPPED AND STOCKPILED TO BE USED DURING PROGRESSIVE REHABILITATION (LANDFILLING OPERATIONS OR REFORESTRATION).
7. THE PROCESSING EQUIPMENT TO BE USED ON SITE MAY INCLUDE, BUT WILL NOT BE RESTRICTED TO, LOADERS, DOZERS AND PORTABLE CRUSHING AND SCREENING PLANTS IF REQUIRED.
8. THE MAXIMUM DEPTH OF EXTRACTION WILL BE 11 METRES FROM THE HIGHEST ELEVATION FOR A FINAL ELEVATION OF 224 METRES.
9. BASED ON SITE INFORMATION THE WATER TABLE IS AT AN ELEVATION OF 224.0m
10. AS MINING NEARS THE LIMITS OF EXTRACTION, THE OPERATOR INTENDS TO EXTRACT TO THE LIMITS OF EXTRACTION. THE REQUIRED 3:1 SLOPES WILL BE ESTABLISHED AS PART OF THE PROGRESSIVE REHABILITATION.
11. SCRAP COLLECTED ON SITE WILL BE DISPOSED OF AS PART OF THE NORMAL LANDFILLING OPERATION OF THIS SITE.
12. DRAINAGE ON THE SITE IS PRIMARILY VERTICAL INFILTRATION. THERE ARE NO APPARENT SPRINGS ON THE SITE AND THE PIT BOTTOM REMAINS DRY EXCEPT DURING SPRING RUNOFF WHEN SOME TEMPORARY PONDING OCCURS.
13. FOR INFORMATION PERTAINING TO WELL LOCATIONS AND AVAILABLE DATA, REFER TO PAGE 4 OF 4
14. FOR CROSS SECTIONS REFER TO PAGE 3 OF 4

REFERENCES

15. THE LANDS TO BE LICENSED ARE OWNED BY THE TOWNSHIP COLLINGWOOD.
16. TOPOGRAPHIC MAPPING IS BASED ON FIELD SURVEY CONDUCTED IN JUNE 1990 BY AINLEY AND ASSOCIATES LIMITED.
17. ELEVATIONS ARE BASED ON FIELD SURVEY CONDUCTED IN APRIL 1984 BY AINLEY AND ASSOCIATES LIMITED.
18. THE DIMENSIONS AND LOCATION OF BUILDINGS AND STRUCTURES WITHIN 150 METRES OF THE BOUNDARY OF THE AREA TO BE LICENSED ARE APPROXIMATELY AS SHOWN ON THE PLAN.

DECLARATION OF PURPOSE

THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES IN CONJUNCTION WITH AN APPLICATION FOR A CLASS 'A' LICENCE UNDER THE AGGREGATE RESOURCES ACT AND REGULATIONS.

I ACKNOWLEDGE AND SHALL CARRY ON MY OPERATION IN ACCORDANCE WITH THIS SITE PLAN UPON WHICH MY LICENCE IS BASED.

SIGNATURE OF LICENSEE\APPLICANT _____ DATE _____

SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES

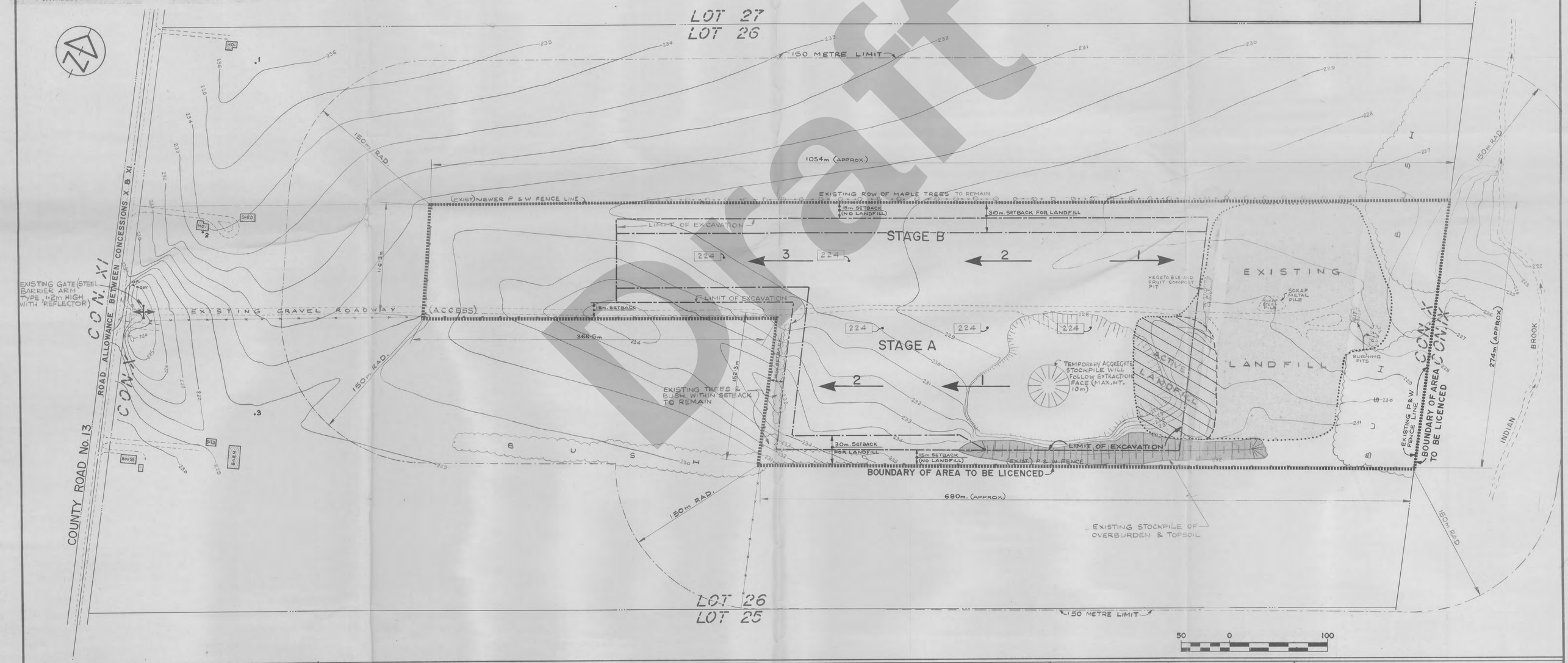
SIGNATURE OF INSPECTOR _____ DATE _____

APPLICANT: TOWNSHIP OF COLLINGWOOD
P.O. BOX 40
CLARKSBURG, ONTARIO
N0H 1J0

SUBJECT PROPERTY: PART LOT 26, CON. X
TOWNSHIP OF COLLINGWOOD

LEGEND

SYMBOL	DESCRIPTION
	BOUNDARY OF AREA TO BE LICENCED.
	LIMIT OF EXCAVATION WITHIN BOUNDARY LIMITS.
	LINE INDICATING ALL POINTS WITHIN 150m OF PROPOSED BOUNDARY
	FENCE LINES
	INTERNAL ROADS
	PIT ENTRANCE & EXIT
224	MINIMUM FINISHED ELEVATION (PRIOR TO LANDFILLING)
	STRUCTURES & BUILDINGS
	STOCKPILE AREA
	WATERWAY, STREAM ETC.
	TOE OF REHABILITATED SLOPE
	DIRECTION OF WORK
.3	EXISTING WELLS
	BUSH & NATURAL TREE SCREEN TO REMAIN



Notes:

NO.	REVISIONS	DATE	INITIAL
1	AS REQUESTED BY M.N.R.	91/04/09	F.N.

Approved

REGISTERED PROFESSIONAL ENGINEER — D. G. McNALTY — 91/02/22 — PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER — F. A. NEUKAMM — 91/02/22 — PROVINCE OF ONTARIO

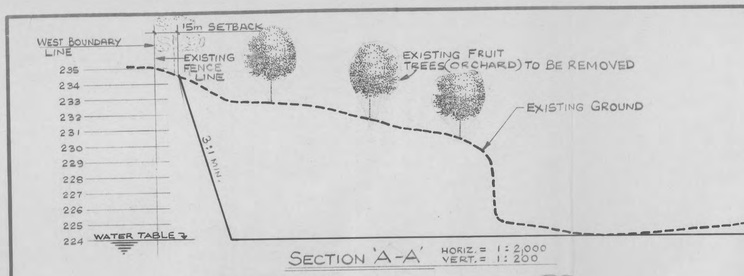
TOWNSHIP OF COLLINGWOOD
TOWNSHIP GRAVEL PIT

OPERATIONAL PLAN

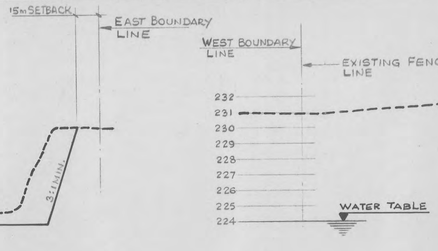
Ainley and Associates Ltd.
Consulting Engineers and Planners
Collingwood — Barrie — Belleville

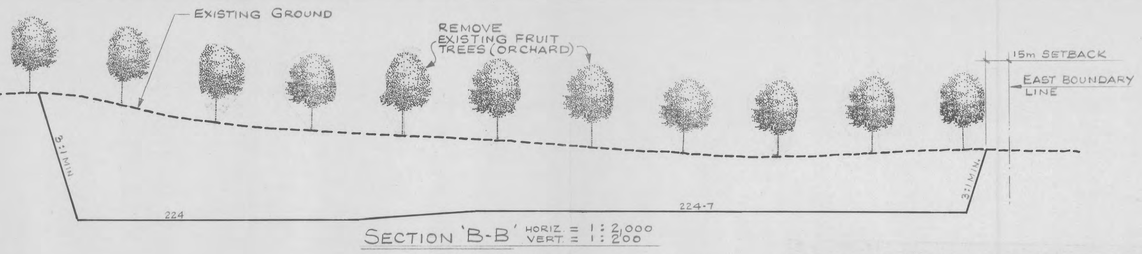
Scale: 1 : 2,000
DESIGN F.N. CHECKED D.McN.
DRAWN P.H.C.C. DATE OCT. 1990

DWG. Nº 190144-2
OF 4 SHEETS

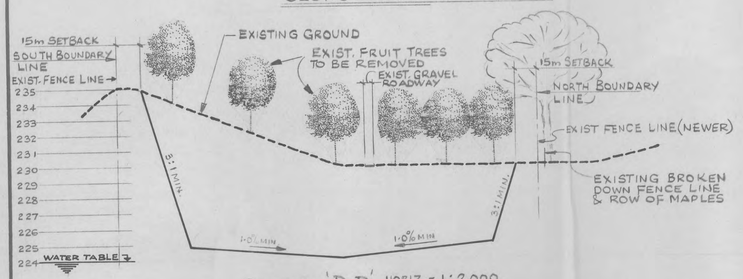


SECTION 'A-A' HORIZ. = 1:2,000 VERT. = 1:200

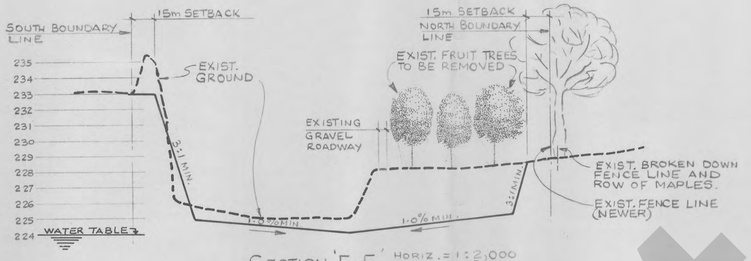




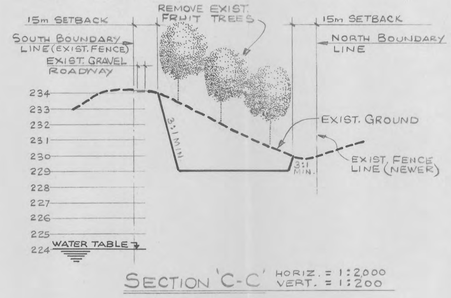
SECTION 'B-B' HORIZ. = 1:2,000 VERT. = 1:200



SECTION 'D-D' HORIZ = 1:2,000 VERT. = 1:200



SECTION 'E-E' HORIZ. = 1:2,000 VERT. = 1:200



SECTION 'C-C' HORIZ. = 1:2000 VERT. = 1:200

DECLARATION OF PURPOSE

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I ACKNOWLEDGE AND SHALL CARRY ON MY OPERATION IN ACCORDANCE WITH THIS SITE PLAN UPON WHICH MY LICENCE IS BASED.

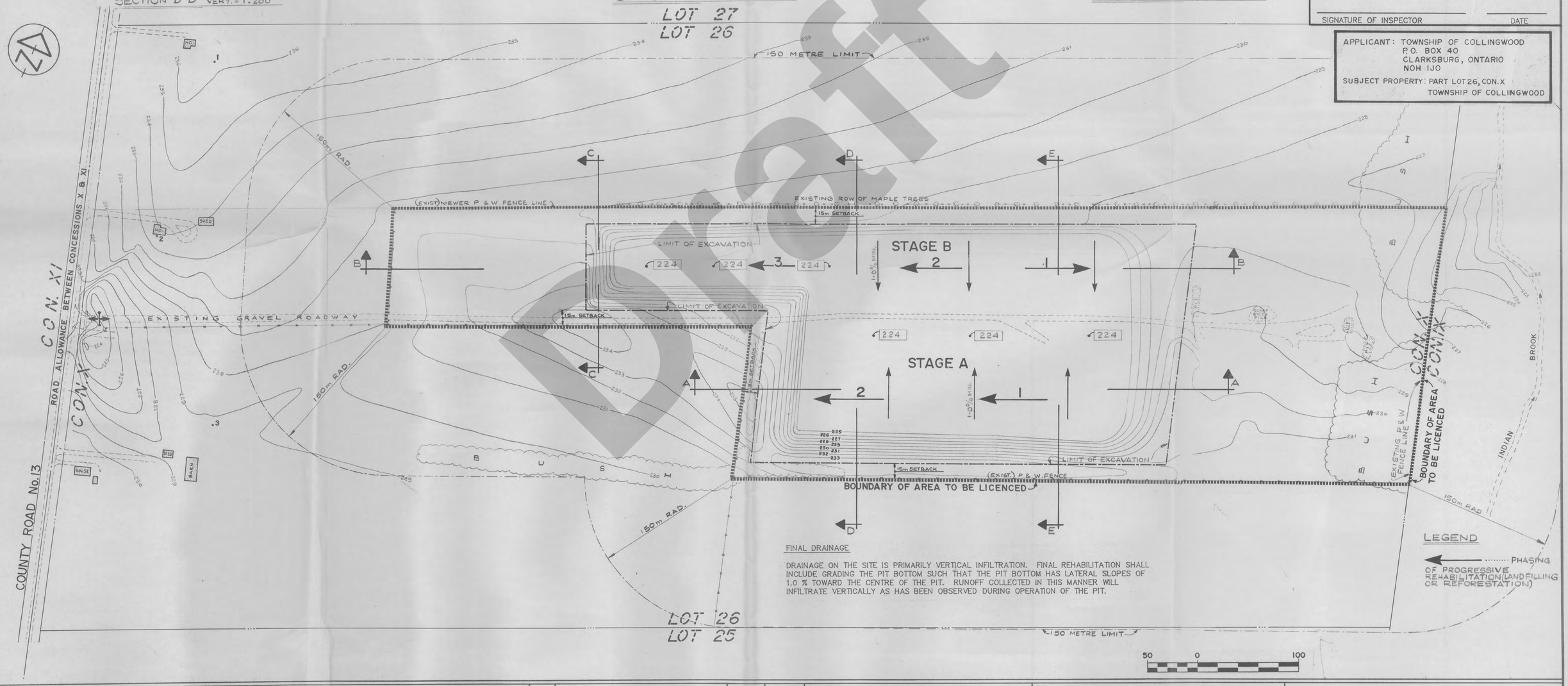
SIGNATURE OF LICENSEE\APPLICANT _____ DATE _____

SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES

SIGNATURE OF INSPECTOR _____ DATE _____

APPLICANT: TOWNSHIP OF COLLINGWOOD
P.O. BOX 40
CLARKSBURG, ONTARIO
N0H 1J0

SUBJECT PROPERTY: PART LOT 26, CON. X
TOWNSHIP OF COLLINGWOOD



LEGEND

PHASING OF PROGRESSIVE REHABILITATION (LANDFILLING OR REFORESTATION)

FINAL DRAINAGE

DRAINAGE ON THE SITE IS PRIMARILY VERTICAL INFILTRATION. FINAL REHABILITATION SHALL INCLUDE GRADING THE PIT BOTTOM SUCH THAT THE PIT BOTTOM HAS LATERAL SLOPES OF 1.0 % TOWARD THE CENTRE OF THE PIT. RUNOFF COLLECTED IN THIS MANNER WILL INFILTRATE VERTICALLY AS HAS BEEN OBSERVED DURING OPERATION OF THE PIT.

Notes:

PROGRESSIVE REHABILITATION

1. AS EACH PHASE IS FULLY EXTRACTED, PROGRESSIVE REHABILITATION WILL OCCUR AS FOLLOWS:
   a) THE PIT WILL BE USED AS A SOLID WASTE DISPOSAL SITE UNDER AN EXISTING MINISTRY OF THE ENVIRONMENT CERTIFICATE OF APPROVAL.
2. IN THE EVENT THAT THE CERTIFICATE OF APPROVAL IS TERMINATED, THE FOLLOWING WILL APPLY:
   a) THE PIT FLOOR WILL BE RIPPED TO A DEPTH OF 0.5 METRES TO ALLEVIATE COMPACTNESS.
   b) OVERBURDEN WILL BE REPLACED TO A MINIMUM DEPTH OF 100 MM USING A SMALL BULLDOZER.
   c) TOPSOIL WILL BE REPLACED TO A MINIMUM DEPTH OF 75 MM USING A SMALL BULLDOZER.
   d) A MIXTURE OF MIXED SEED AND MULCH WILL BE SPREAD OVER THE TOPSOIL (CANADA BLUE GRASS, TIMOTHY, PERRENNIAL RYE GRASS, ALFALFA AND RED CLOVER).

FINAL REHABILITATION

3. THOSE AREAS OF THE SITE NOT USED FOR SOLID WASTE DISPOSAL WILL BE REHABILITATED AS FOLLOWS:
   a) AS THE LIMITS OF EXTRACTION ARE REACHED, THE EXTRACTIVE FACES WILL SLOPED NO STEEPER THAN 3:1 USING A DOZER AND GRADER TO ACHIEVE THE FINAL CONTOURS. AVAILABLE OVERBURDEN AND TOPSOIL WILL BE USED TO SHAPE THE SLOPES.
   b) THE AREA WILL BE PLANTED (REFORESTED) IN ACCORDANCE WITH "REHABILITATION OF PITS AND QUARRIES FOR FOREST PRODUCTION", M.N.R., 1988.
   c) MAINTENANCE WILL INCLUDE MOWING GRASS, WEED SUPPRESSION, PEST CONTROL, REPLANTING, AND THINNING AND PRUNING.
4. THE AREA TO BE LICENSED AND REHABILITATED IS 16.8 HECTARES OF WHICH APPROXIMATED 4.6 ha IS BEING USED FOR SOLID WASTE DISPOSAL.
5. FOR REFERENCES REFER TO PAGE 2 OF 4

NO.	REVISIONS	DATE	INITIAL
1	AS REQUESTED BY M.N.R.	91/04/09	F.N.

Approved

REGISTERED PROFESSIONAL ENGINEER D. G. McNALTY PROVINCE OF ONTARIO 91/02/22

LICENSED PROFESSIONAL ENGINEER F. A. NEUKAMM PROVINCE OF ONTARIO 91/02/22

TOWNSHIP OF COLLINGWOOD
TOWNSHIP GRAVEL PIT

PROGRESSIVE REHABILITATION & FINAL REHABILITATION PLANS

Ainley and Associates Ltd.
Consulting Engineers and Planners
Collingwood — Barrie — Belleville

Scale: 1:2,000

DESIGN F.N. | CHECKED D.McN.

DRAWN P.H.C.C. | DATE OCT. 1990

DWG. Nº 19014-3 OF 4 SHEETS

APPENDIX C
AMENDED REHABILITATION PLAN

NOTES:

1. THE OVERALL PROPERTY CONTAINING THE COLLINGWOOD PIT (THE TOWN PIT) IS APPROXIMATELY 23.1 HECTARES. OF THE 23.1 HECTARES, APPROXIMATELY 10.1 HECTARES HAS BEEN APPROVED TO OPERATE AS A SOLID WASTE DISPOSAL SITE IDENTIFIED AS THE BLUE MOUNTAINS LANDFILL UNDER ENVIRONMENTAL COMPLIANCE APPROVAL (ECA) NO. A261404, DATED FEBRUARY 26, 2014, LAST AMENDED JUNE 1, 2017. SINCE THE SUBMISSION OF THE ORIGINAL SITE PLAN (1990), STAGE A (5.4 HECTARES) HAS BEEN REHABILITATED WITH THE DEPOSIT OF SOLID WASTE UNDER THE ECA IDENTIFIED ABOVE. WITH APPROXIMATELY 3.6 HECTARES OF THE TOWN PIT REMAINING TO BE REHABILITATED (STAGE B1, STAGE B2, AND STAGE B3).
2. OF THE 3.6 HECTARES OF TOWN PIT REMAINING TO BE REHABILITATED, AN AREA OF APPROXIMATELY 16,400 SQUARE METRES LOCATED IN STAGE B3 (AND A PORTION OF STAGE B2), WILL BE INFILLED WITH APPROXIMATELY 65,210 m³ OF EXCESS SOIL. THE WESTERN EXTENT OF STAGE B3 WILL FIRST BE REHABILITATED, WITH REHABILITATION OCCURRING IN AN EASTERLY DIRECTION.
3. REHABILITATION WITH EXCESS SOIL WILL OCCUR FIRST ALONG THE NORTH, WEST, AND SOUTH EDGES OF STAGE B3, AND THE NORTH WALL OF STAGE B2, TO IMPROVE THE EXISTING SLOPES AS SHOWN ON THE PLAN, IN COMPLIANCE WITH ONTARIO REGULATION 490/19 UNDER ENVIRONMENTAL PROTECTION ACT, R.S.O., C. E. 19 (JANUARY 1, 2023)(EXCESS SOIL REGULATION). FOLLOWING THE STABILIATION OF THE NORTH, WEST, AND SOUTH SLOPES, THE CENTRAL PORTION OF STAGES B3 AND B2 WILL BE INFILLED TO A MAXIMUM ELEVATION BETWEEN 230.0 METRES ABOVE SEA LEVEL (masl) (AT THE WEST EDGE) AND 223.11 masl (AT THE EAST EDGE). STAGE B2 WILL BE UTILIZED AS AN EXCESS SOIL STOCKPILING AREA.
4. THE EXISTING EXTRACTIVE FACES ALONG THE NORTH, WEST, AND SOUTH OF STAGE B3, AND THE NORTH WALL OF STAGE B2 WILL BE SLOPED AT 3:1, WITH THE CENTRAL AREA OF STAGE B3 SLOPED AT A GRADE BETWEEN 1:16.5 AND 1:28.3 USING A DOZER. LIFTS WILL BE PLACED WITH A MAXIMUM THICKNESS OF 300 MILLIMETRES (mm).
5. A DRAINAGE DITCH IS LOCATED SOUTHEAST OF STAGE B2 AND STAGE B3, ALONG THE MAIN ACCESS ROAD, WHICH CONVEYS SURFACE WATER RUN-OFF AWAY FROM THE STAGE AND CONVEYS IT NORTH OF THE LANDFILL CELL TOWARDS INDIAN BROOK, LOCATED EAST OF THE SITE. A STORMWATER DRAINAGE SYSTEM IS ALSO PRESENT WITHIN THE COMPOST AREA, WITH A STORMWATER MANAGEMENT POND LOCATED AT THE SOUTHEAST CORNER. SHALLOW STANDING WATER WAS OBSERVED (MAY 2023) WITHIN STAGE B3 AND SOUTH OF THE MAIN ACCESS ROAD, WEST OF THE LANDFILL FOOTPRINT. OTHERWISE DRAINAGE ON THE SITE IS PRIMARILY VERTICAL INFILTRATION. THE PIT BOTTOM WAS REPORTED TO REMAIN DRY YEAR-ROUND, WITH THE EXCEPTION OF DURING SPRING THAW WHEN TEMPORARY PONDING OCCURS IN STAGE B3.
6. STAGE B3 AND STAGE B2 WILL BE REGISTERED ON THE EXCESS SOIL REGISTRY SET FORTH BY THE RESOURCE PRODUCTIVITY AND RECOVERY AUTHOURITY (RPRA) AS A 'REUSE SITE'. AS EXCESS SOIL WILL BE IMPORTED TO THE SITE FOR THE BENEFICIAL REUSE OF REHABILITATING THE PIT.
7. PRIOR TO IMPORTING EXCESS SOIL TO THE SITE, THE EXCESS SOIL QUALITY STANDARDS SET FORTH IN PART II OF THE RULES FOR SOIL MANAGEMENT AND EXCESS SOIL QUALITY STANDARDS (EXCESS SOIL RULES) (DECEMBER 23, 2022), AND THE BEST MANAGEMENT PRACTICES FOR AGGREGATE PIT AND QUARRY REHABILITATION IN ONTARIO SET FORTH BY THE ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS WILL BE REFERENCED. THE EXCESS SOIL TO BE BROUGHT TO THE REUSE SITE WILL BE DONE SO IN ACCORDANCE WITH THE DOCUMENTATION AND TRACKING REQUIREMENTS OUTLINED IN THE EXCESS SOIL REGULATION AND EXCESS SOIL RULES.
8. A MAXIMUM GROUNDWATER LEVEL WAS INTERPRETED FROM A REPORTED GROUNDWATER ELEVATION OBTAINED FROM HISTORICAL WATER LEVEL GRAPHS AT LOCATION BH21 IN MAY 2017, AS OBSERVED IN THE 2022 ANNUAL WATER MONITORING REPORT (FOR TOWN OF BLUE MOUNTAINS SOILD WASTE DISPOSAL SITE, WSP CANADA INC., APRIL 2022)
9. STAGE B2 AND B3 WILL BE FILLED USING A COMBINATION OF THE FOLLOWING (REFER TO CROSS-SECTIONS):

a. **BARRIER LAYER:**
   - EXCESS SOIL (COARSE-GRAINED, MINERAL SOIL) MEETING **TABLE 1 SITE CONDITION STANDARDS** (SCS) FOR RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMUNITY / COMMERCIAL (RPICC) PROPERTY USE WILL BE PLACED AT AND BELOW THE MAXIMUM GROUNDWATER ELEVATION (223.29 MASL).
   - 2.0 METRES OF EXCESS SOIL (MINERAL SOIL) THAT MEET TABLE 6.1 EXCESS SOIL QUALITY STANDARDS (ESQS) FOR ICC USE AND CORRESPONDING TABLE 6.1 LSL FOR ICC PROPERTY USE WILL BE PLACED ABOVE THE INFERRED MAXIMUM GROUNDWATER ELEVATION OF 223.29 masl.

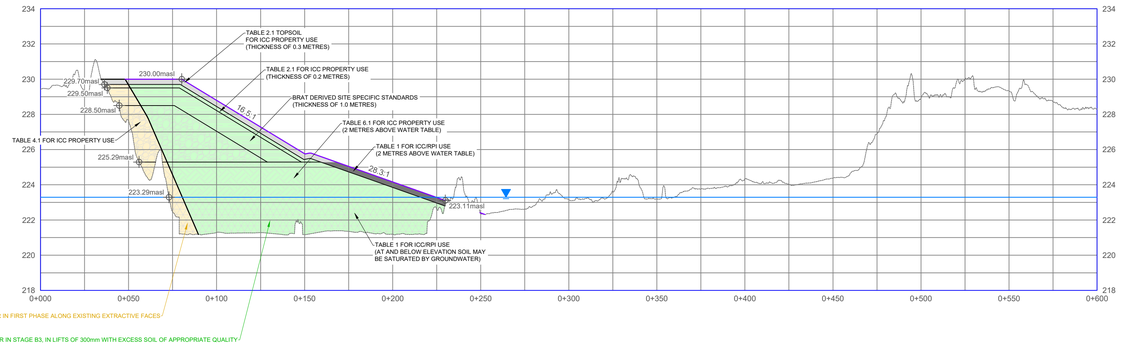
b. **FILL LAYER:**
   - EXCESS SOIL (MINERAL SOIL) MEETING **TABLE 4.1** ESQS (ICC PREOPRTY USE) AND CORRESPONDING TABLE 4.1 LSL (ICC PROPERTY USE) WILL BE PLACED ABOVE THE BARRIER LAYER UNTIL ELEVATIONS ARE WITHIN 1.5 METRES OF FINAL CONTOUR.

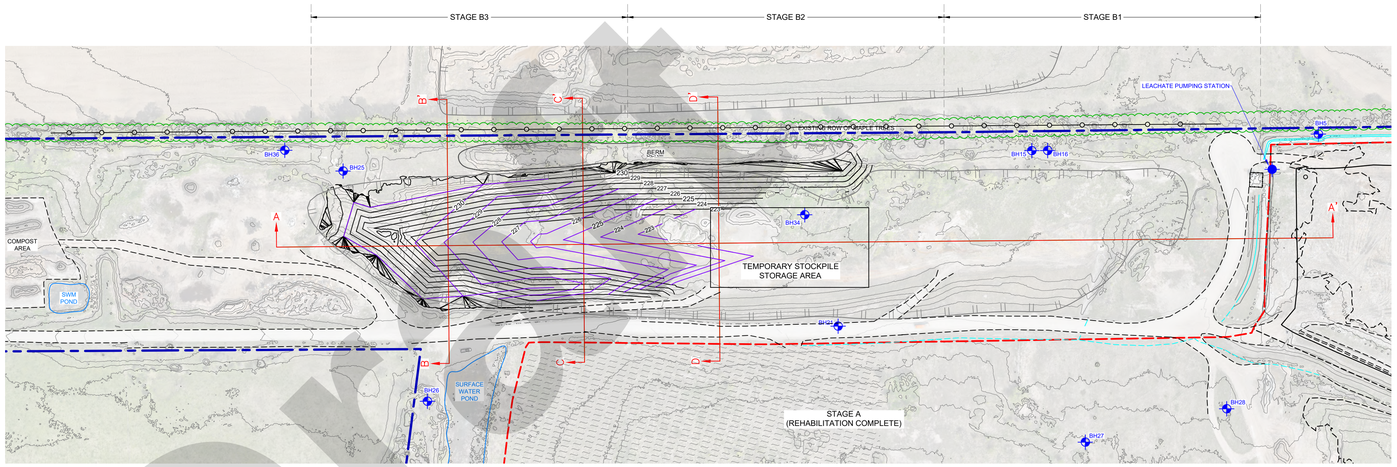
b. **FINISH LAYERS:**
   - EXCESS SOIL (MINERAL SOIL) MEETING THE **BRAT DERIVED SITE-SPECIFIC STANDARDS** WILL BE PLACED ABOVE THE TABLE 4.1 FILL LAYER IN A THICKNESS OF 1 METRE.
   - EXCESS SOIL (MINERAL SOIL) MEETING **TABLE 2.1** EQSS (ICC USE) AND CORRESPONDING TABLE 2.1 LSL (ICC USE) WILL BE PLACED UNTIL 0.3 METRES OF FINAL SURFACE IS REACHED (0.2 METRES THICKNESS).

c. **TOPSOIL LAYERS (0.30 METRES THICKNESS):**
   - RECOVERED TOPSOIL FROM PREVIOUS OPERATIONS, OR IMPORTED EXCESS SOIL (TOPSOIL) WILL BE PLACED WHICH MEETS **TABLE 1 SCS** AND LSL FOR ICC USE TWO METRES ABOVE, AT AND AND BELOW THE MAXIMUM GROUNDWATER ELEVATION OF 223.29 masl UNTIL FINAL GRADE IS REACHED.
   - RECOVERED TOPSOIL FROM PREVIOUS OPERATIONS, OR IMPORTED EXCESS SOIL (TOPSOIL) MEETING **TABLE 2.1** ESQS AND LSL WILL BE PLACED AT ELEVATION GREATER THAN 2 METRES ABOVE THE MAXIMUM GROUNDWATER TABLE UNTIL FINAL GRADE IS REACHED.

10. FOR EACH SOIL SOURCE (PROJECT AREA), AUDIT SAMPLING WILL BE PERFORMED WITHIN THE FIRST 1,000 m³ AND THEN AT APPROXIMATELY 2,500 m³ AND EVERY 2,500 m³ THEREAFTER (I.E. 5,000, 7,500, 10,000 m³ ETC.).
11. FINAL VEGETATION WILL BE A MIXTURE OF HAY, CLOVER, AND ALFALFA (OR SIMILAR) AND PLOWED UNDER AS REQUIRED TO CONDTION THE SOIL. ADDITIONAL SOIL CONDITIONING OF COMPOST MATERIALS MAY ALSO BE CONSIDERED AS NEEDED TO CONDITION THE TOPSOIL AHEAD OF SEEDING.
12. ONCE FINAL GRADE HAS BEEN ACHIEVED, REHABILITATED AREAS WILL BE RESEEDED ANNUALLY IN THE EVENT OF DIE-OUT.
13. HARD SURFACE ENTRANCE AND EGRESS ROADWAYS WILL REMAIN FOR FUTURE SOLID WASTE DISPOSAL ON-SITE. FACILITIES IN SUPPORT OF THE WASTE DISPOSAL INCLUDE TWO PERMANENT STRUCTURES, AN OPERATIONS BUILDING, AND A SCALE HOUSE, WHICH WILL REMAIN FOR FUTURE SOLID WASTE DISPOSAL.
14. ALL POST AND WIRE FENCING WILL REMAIN.
15. ALL EQUIPMENT AND MATERIAL SPECIFIC TO THE REHABILITATION AND ANY OTHER APPURTENANCES WILL BE REMOVED FROM THE SITE UPON REHABILITATION COMPLETION.

SECTION A





INITIAL EXCESS SOIL PLACEMENT TO OCCUR IN FIRST PHASE ALONG EXISTING EXTRACTIVE FACES

SECONDARY EXCESS SOIL PLACEMENT TO OCCUR IN STAGE B3, IN LIFTS OF 300mm WITH EXCESS SOIL OF APPROPRIATE QUALITY

EXCAVATION

DRAINAGE DITCH

LIMIT OF LANDFILL

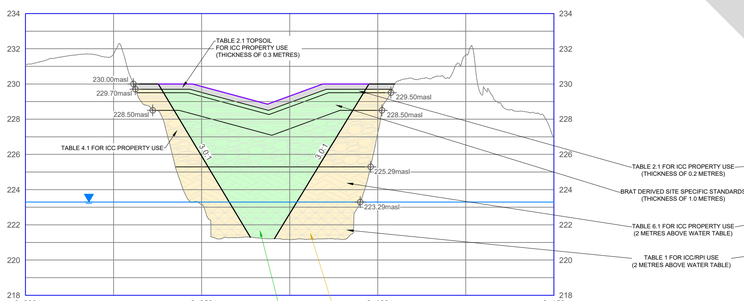
PROPERTY LIMITS

POST AND WIRE FENCE

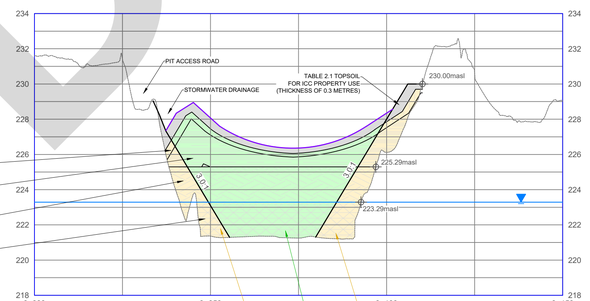
HISTORICAL MAXIMUM GROUNDWATER ELEVATION OF 223.29masl (MAY 2017)

APPROXIMATE MONITORING WELL LOCATION

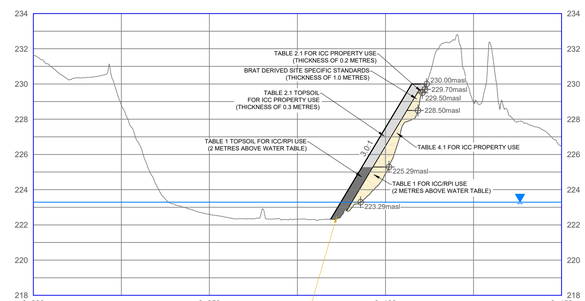
SECTION B



SECTION C



SECTION D



FILE: L551190101001.dwg

No.	Description	Auth. By	Date
1	ISSUED FOR REVIEW	DGW	JUNE 2023

REVISIONS

NOTES TO CROSS-SECTIONS:
ACCORDING TO THE ONTARIO SOCIETY FOR PROFESSIONAL ENGINEERS (OSPE) DOCUMENT "BEST MANAGEMENT PRACTICES FOR AGGREGATE PIT AND QUARRY REHABILITATION IN ONTARIO," (MARCH 2021), A LAYER CAKE APPROACH MAY BE USED IN CIRCUMSTANCES WHERE CERTAIN SITE CONDITIONS ARE MET.

ICC - INDUSTRIAL, COMMERCIAL, COMMUNITY
MASL - METRES ABOVE SEA LEVEL
RPI - RESIDENTIAL, PARKLAND, INSTITUTIONAL

NOTES

XCG Environmental Engineers & Scientists

Designed By:	C. NORTHEY
Date:	JULY 2023
Drawn By:	J. VAN DER WOUDE
Date:	JULY 2023
Checked By:	G. WALSOM
Date:	JULY 2023

Scale:

0 40 80m
PLAN VIEW SCALE

SECTION SCALES AS INDICATED

THE TOWNSHIP OF COLLINGWOOD PIT (TOWN PIT) - ALPS #4822

PROGRESSIVE REHABILITATION AND FINAL REHABILITATION PLANS

788090 GREY ROAD 13 TOWN OF THE BLUE MOUNTAINS

Contract No:	Drawing No:	Rev.
2023-30-P-OPS	1	0

APPENDIX D

APPLICABLE EXCESS SOIL QUALITY STANDARDS AND DECISION FLOW-CHART

Town Pit – Soil Acceptance Process

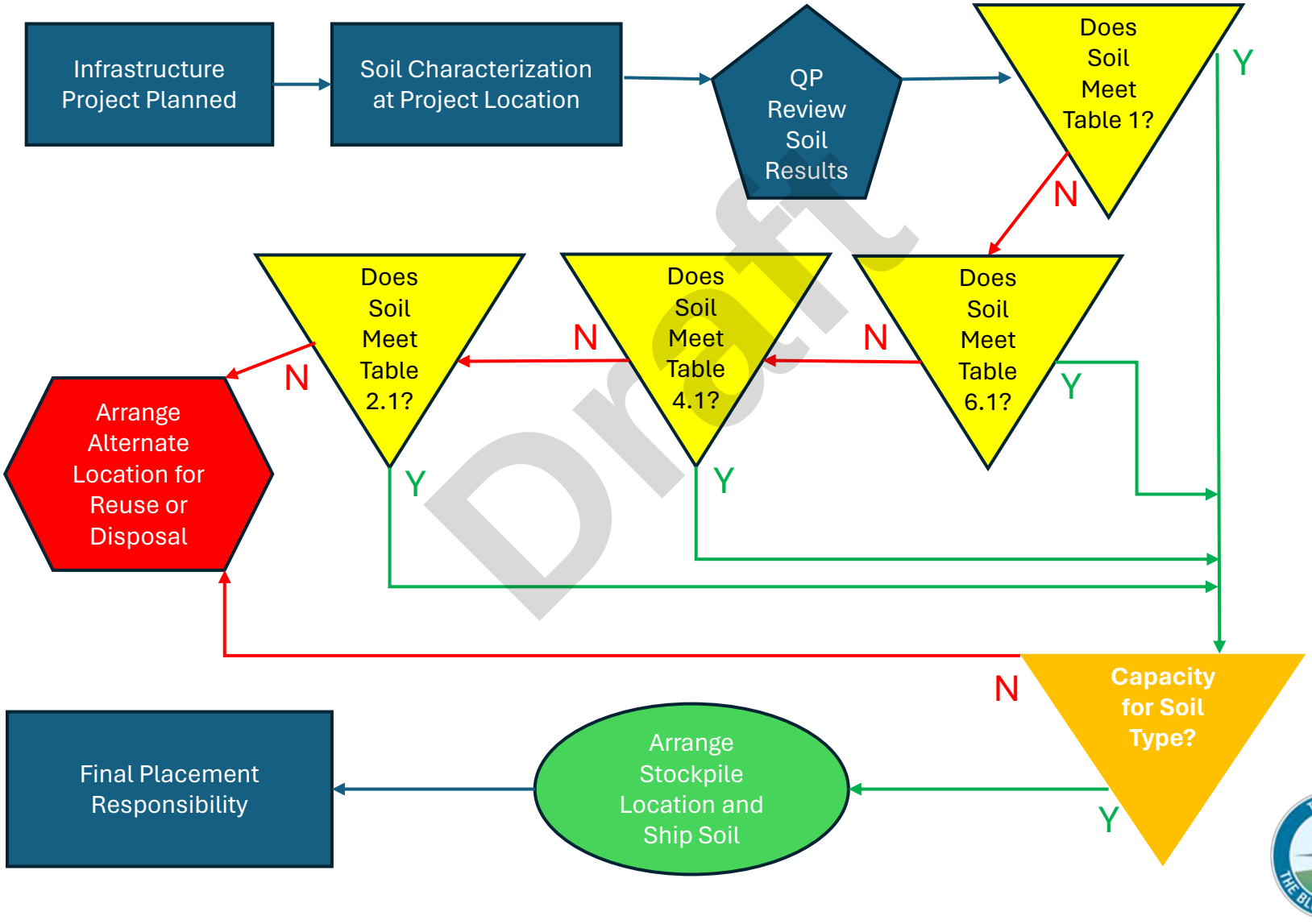


TABLE 1: Full Depth Background Site Condition Standards[#]

(Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use
Acenaphthene	0.05 RL	0.072
Acenaphthylene	0.093	0.093
Acetone	0.5 RL	0.5 RL
Aldrin	0.05 RL	0.05 RL
Anthracene	0.05 RL	0.16
Antimony	1 a, RL	1.3
Arsenic	11	18
Barium	210	220
Benzene	0.02 RL	0.02 RL
Benz[a]anthracene	0.095	0.36
Benzo[a]pyrene	0.05 RL	0.3
Benzo[b]fluoranthene	0.3	0.47
Benzo[ghi]perylene	0.2	0.68
Benzo[k]fluoranthene	0.05 RL	0.48
Beryllium	2.5	2.5
Biphenyl 1,1'-	0.05 RL	0.05 RL
Bis(2-chloroethyl)ether	0.5 a, RL	0.5 a, RL
Bis(2-chloroisopropyl)ether	0.5 a, RL	0.5 a, RL
Bis(2-ethylhexyl)phthalate	5 RL	5 RL
Boron (Hot Water Soluble)*	NA	NA
Boron (total)	36	36
Bromodichloromethane	0.05 RL	0.05 RL
Bromoform	0.05 RL	0.05 RL
Bromomethane	0.05 a, RL	0.05 a, RL
Cadmium	1 RL	1.2
Carbon Tetrachloride	0.05 a, RL	0.05 a, RL
Chlordane	0.05 RL	0.05 RL
Chloroaniline p-	0.5 a, RL	0.5 a, RL
Chlorobenzene	0.05 RL	0.05 RL
Chloroform	0.05 a, RL	0.05 a, RL
Chlorophenol, 2-	0.1 RL	0.1 RL
Chromium Total	67	70
Chromium VI	0.66	0.66

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use
Chrysene	0.18	2.8
Cobalt	19	21
Copper	62	92
Cyanide (CN-)	0.051	0.051
Dibenz[a h]anthracene	0.1 RL	0.1 RL
Dibromochloromethane	0.05 RL	0.05 RL
Dichlorobenzene, 1,2-	0.05 a, RL	0.05 a, RL
Dichlorobenzene, 1,3-	0.05 RL	0.05 RL
Dichlorobenzene, 1,4-	0.05 a, RL	0.05 a, RL
Dichlorobenzidine, 3,3'-	1 a, RL	1 a, RL
Dichlorodifluoromethane	0.05 RL	0.05 RL
DDD	0.05 RL	0.05 RL
DDE	0.05 RL	0.05 RL
DDT	0.078	1.4
Dichloroethane, 1,1-	0.05 a, RL	0.05 a, RL
Dichloroethane, 1,2-	0.05 a, RL	0.05 a, RL
Dichloroethylene, 1,1-	0.05 a, RL	0.05 a, RL
Dichloroethylene, 1,2-cis-	0.05 a, RL	0.05 a, RL
Dichloroethylene, 1,2-trans-	0.05 a, RL	0.05 a, RL
Dichlorophenol, 2,4-	0.1 RL	0.1 RL
Dichloropropane, 1,2-	0.05 a, RL	0.05 a, RL
Dichloropropene,1,3-	0.05 a, RL	0.05 a, RL
Dieldrin	0.05 a, RL	0.05 a, RL
Diethyl Phthalate	0.5 a, RL	0.5 a, RL
Dimethylphthalate	0.5 a, RL	0.5 a, RL
Dimethylphenol, 2,4-	0.2 RL	0.2 RL
Dinitrophenol, 2,4-	2 a, RL	2 a, RL
Dinitrotoluene, 2,4 & 2,6-	0.5 a, RL	0.5 a, RL
Dioxane, 1,4	0.2 a, RL	0.2 a, RL
Dioxin/Furan (TEQ)	0.000007	0.000007 RL
Endosulfan	0.04 RL	0.04 RL
Endrin	0.04 a, RL	0.04 a, RL
Ethylbenzene	0.05 RL	0.05 RL
Ethylene dibromide	0.05 a, RL	0.05 a, RL
Fluoranthene	0.24	0.56

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use
Fluorene	0.05 RL	0.12
Heptachlor	0.05 a, RL	0.05 a, RL
Heptachlor Epoxide	0.05 a, RL	0.05 a, RL
Hexachlorobenzene	0.01 RL	0.01 RL
Hexachlorobutadiene	0.01 RL	0.01 RL
Hexachlorocyclohexane Gamma-	0.01 RL	0.01 RL
Hexachloroethane	0.01 RL	0.01 RL
Hexane (n)	0.05 RL	0.05 RL
Indeno[1 2 3-cd]pyrene	0.11	0.23
Lead	45	120
Mercury	0.16	0.27
Methoxychlor	0.05 RL	0.05 RL
Methyl Ethyl Ketone	0.5 RL	0.5 RL
Methyl Isobutyl Ketone	0.5 RL	0.5 RL
Methyl Mercury **	NV	NV
Methyl tert-Butyl Ether (MTBE)	0.05 RL	0.05 RL
Methylene Chloride	0.05 RL	0.05 RL
Methlynaphthalene, 2-(1-) ***	0.05 RL	0.59
Molybdenum	2 a, RL	2 a, RL
Naphthalene	0.05 RL	0.09
Nickel	37	82
Pentachlorophenol	0.1 RL	0.1 RL
Petroleum Hydrocarbons F1****	17	25
Petroleum Hydrocarbons F2	10 RL	10 RL
Petroleum Hydrocarbons F3	240	240
Petroleum Hydrocarbons F4	120	120
Phenanthrene	0.19	0.69
Phenol	0.5 RL	0.5 RL
Polychlorinated Biphenyls	0.3 RL	0.3 RL
Pyrene	0.19	1
Selenium	1.2	1.5
Silver	0.5 a, RL	0.5 a, RL
Styrene	0.05 RL	0.05 RL
Tetrachloroethane, 1,1,1,2-	0.05 a, RL	0.05 a, RL
Tetrachloroethane, 1,1,2,2-	0.05 a, RL	0.05 a, RL

Contaminant	Agricultural or Other Property Use	Residential/Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use
Tetrachloroethylene	0.05 a, RL	0.05 a, RL
Thallium	1 a, RL	1 a, RL
Toluene	0.2 RL	0.2 RL
Trichlorobenzene, 1,2,4-	0.05 RL	0.05 RL
Trichloroethane, 1,1,1-	0.05 RL	0.05 RL
Trichloroethane, 1,1,2-	0.05 a, RL	0.05 a, RL
Trichloroethylene	0.05 a, RL	0.05 a, RL
Trichlorofluoromethane	0.05 RL	0.25
Trichlorophenol, 2,4,5-	0.1 RL	0.1 RL
Trichlorophenol, 2,4,6-	0.1 a, RL	0.1 a, RL
Uranium	1.9	2.5
Vanadium	86	86
Vinyl Chloride	0.02 RL	0.02 RL
Xylene Mixture	0.05 RL	0.05 RL
Zinc	290	290
Electrical Conductivity (mS/cm)	0.47	0.57
Sodium Adsorption Ratio	1	2.4

Notes:

#: Standards in this table are the same as those in Table 1 of *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, dated April 15, 2011. Those standards may be updated from time to time.

NV: No Value; RL: Table 1 value set at Reporting Limits; a: Leachate analysis is required only for contaminants that are identified as contaminants of potential concern in *excess soil* (as specified in subsection 1 (7) in Section A of PART II of this document).

*: The boron standards are for hot water soluble extract for all *surface soils*. For *subsurface soils* the standards are for total boron (mixed strong acid digest), since plant protection for *soils* below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded.

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include benzene, toluene, ethylbenzene and xylene (BTEX); however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 2.1: Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition

Volume Independent (Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Acenaphthene	2.5	2.5	2.5
Acenaphthylene	0.093	0.093	0.093
Acetone	0.5	0.5	0.5
Aldrin	0.05	0.05	0.088
Anthracene	0.058	0.16	0.16
Antimony	7.5 [a]	7.5 [a]	40 [a]
Arsenic	11	18	18
Barium	390 [a]	390 [a]	670 [a]
Benzene	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.5	0.92
Benzo[a]pyrene	0.31	0.31	0.31
Benzo[b]fluoranthene	3.2	3.2	3.2
Benzo[ghi]perylene	6.6	6.6	13
Benzo[k]fluoranthene	3.1	3.1	3.1
Beryllium	4 [a]	4 [a]	8 [a]
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	5	9.9
Boron (Hot Water Soluble)*	1.5	1.5	2
Boron (total)	120 [a]	120 [a]	120 [a]
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1 [a]	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.05	0.05	0.05
Chlorophenol, 2-	0.1	0.1	0.1
Chromium Total	160 [a]	160 [a]	160 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Chromium VI	8	8	8
Chrysene	7	7	9.4
Cobalt	22 [a]	22 [a]	80 [a]
Copper	140 [a]	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.57	0.57	0.7
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	3.4 [a]	6.8 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5
DDD	3.3	3.3	4.6
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05	0.05	0.05
Dieldrin	0.05 [a]	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000022
Endosulfan	0.04	0.04	0.04
Endrin	0.04 [a]	0.04 [a]	0.04 [a]
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Fluoranthene	0.69	0.69	2.8
Fluorene	6.8	6.8	6.8
Heptachlor	0.072	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01
Hexane (n)	2.5	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	0.38	0.76
Lead	45	120	120
Mercury	0.24	0.27	0.27
Methoxychlor	0.13	0.13	0.19
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	6.9 [a]	6.9 [a]	40 [a]
Naphthalene	0.2	0.2	0.2
Nickel	100 [a]	100 [a]	270 [a]
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	26
Petroleum Hydrocarbons F3	240	240	240
Petroleum Hydrocarbons F4	2800	2800	3300
Phenanthrene	6.2	6.2	12
Phenol	2.4	2.4	2.4
Polychlorinated Biphenyls	0.35	0.35	0.78
Pyrene	28	28	28
Selenium	2.4 [a]	2.4 [a]	5.5 [a]
Silver	20 [a]	20 [a]	40 [a]
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1 [a]	1 [a]	3.3 [a]
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.17	0.17	0.51
Trichloroethane, 1,1,1-	0.11	0.11	0.12
Trichloroethane, 1,1,2-	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.17	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	4.4 [a]	10 [a]
Uranium	23 [a]	23 [a]	33 [a]
Vanadium	86	86	86
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	340 [a]	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4
Sodium Adsorption Ratio	5	5	12

Notes:

[a]: Leachate analysis is required only for contaminants that are identified as contaminants of potential concern in *excess soil* (as specified in subsection 1 (7) in Section A of PART II of this document).

*: The boron standards are for hot water soluble extract for all *surface soils*. For *subsurface soils* the standards are for total boron (mixed strong acid digest), since plant protection for *soils* below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded.

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include benzene, toluene, ethylbenzene and xylene (BTEX); however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 4.1: Stratified Excess Soil Quality Standards in a Potable Ground Water Condition

Volume Independent (Unit in µg/g)

Contaminant	Residential/Parkland/ Institutional Property Use		Industrial/Commercial/ Community Property Use	
	Surface	Subsurface	Surface	Subsurface
Acenaphthene	2.5	2.5	2.5	2.5
Acenaphthylene	0.093	0.093	0.093	0.093
Acetone	0.5	0.5	0.5	0.5
Aldrin	0.05	0.37	0.088	0.37
Anthracene	0.16	0.16	0.16	0.16
Antimony	7.5 [a]	63 [a]	40 [a]	63 [a]
Arsenic	18	18	18	39 [a]
Barium	390 [a]	7700 [a]	670 [a]	7700 [a]
Benzene	0.02	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.92	0.92	0.92
Benzo[a]pyrene	0.31	0.31	0.31	0.31
Benzo[b]fluoranthene	3.2	3.2	3.2	3.2
Benzo[ghi]perylene	6.6	70	13	110
Benzo[k]fluoranthene	3.1	3.1	3.1	3.1
Beryllium	4 [a]	60 [a]	8 [a]	60 [a]
Biphenyl 1,1'-	0.05	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	9.9	9.9	9.9
Boron (Hot Water Soluble)*	1.5	NA	2	NA
Boron (total)	NA	5000 [a]	NA	5000 [a]
Bromodichloromethane	0.05	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1.2	7.9 [a]	1.9 [a]	7.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.8	0.05	3.4
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083	0.083

Contaminant	Residential/Parkland/ Institutional Property Use		Industrial/Commercial/ Community Property Use	
	Surface	Subsurface	Surface	Subsurface
Chloroform	0.05	0.05	0.05	0.05
Chlorophenol, 2-	0.1	0.1	0.1	0.1
Chromium Total	160 [a]	11000 [a]	160 [a]	11000 [a]
Chromium VI	8	40	8	40
Chrysene	7	9.4	9.4	9.4
Cobalt	22 [a]	250 [a]	80 [a]	2500 [a]
Copper	140 [a]	1900 [a]	230 [a]	1900 [a]
Cyanide (CN-)	0.051	0.051	0.051	0.051
Dibenz[a h]anthracene	0.57	0.7	0.7	1
Dibromochloromethane	0.05	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	4.9 [a]	6.8 [a]	14 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5	1.5
DDD	3.3	4.6	4.6	15
DDE	0.26	3.2	0.52	15
DDT	1.4	3.2	1.4	22
Dichloroethane, 1,1-	0.05	0.05	0.05	0.05
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05	0.05	0.05	0.05
Dieldrin	0.05 [a]	7.9 [a]	0.088 [a]	12 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]	0.5 [a]

Contaminant	Residential/Parkland/ Institutional Property Use		Industrial/Commercial/ Community Property Use	
	Surface	Subsurface	Surface	Subsurface
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000022	0.000022	0.000022
Endosulfan	0.04	0.04	0.04	0.04
Endrin	0.04 [a]	7.8 [a]	0.04 [a]	7.8 [a]
Ethylbenzene	0.05	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Fluoranthene	0.69	2.8	2.8	2.8
Fluorene	6.8	6.8	6.8	6.8
Heptachlor	0.072	0.072	0.072	0.072
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01	0.01
Hexane (n)	2.5	2.5	2.5	2.5
Indeno[1 2 3-cd]pyrene	0.38	7	0.76	11
Lead	120	1000 [a]	120	1000 [a]
Mercury	0.27	0.27	0.27	1.9
Methoxychlor	0.13	0.19	0.19	0.19
Methyl Ethyl Ketone	0.5	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.59	0.59	0.59	0.59
Molybdenum	6.9 [a]	1200 [a]	40 [a]	1200 [a]
Naphthalene	0.2	0.2	0.2	0.2
Nickel	100 [a]	510 [a]	270 [a]	510 [a]
Pentachlorophenol	0.1	0.34	0.34	0.34
Petroleum Hydrocarbons F1****	25	25	25	25
Petroleum Hydrocarbons F2	10	10	26	26

Contaminant	Residential/Parkland/ Institutional Property Use		Industrial/Commercial/ Community Property Use	
	Surface	Subsurface	Surface	Subsurface
Petroleum Hydrocarbons F3	240	240	240	240
Petroleum Hydrocarbons F4	2800	6900	3300	6900
Phenanthrene	6.2	23	12	23
Phenol	2.4	2.4	2.4	2.4
Polychlorinated Biphenyls	0.35	2.7	0.78	4.1
Pyrene	28	28	28	28
Selenium	2.4 [a]	1200 [a]	5.5 [a]	1200 [a]
Silver	20 [a]	490 [a]	40 [a]	490 [a]
Styrene	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05	0.05	0.05	0.05
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1 [a]	3.3 [a]	3.3 [a]	33 [a]
Toluene	0.2	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.17	0.17	0.51	0.51
Trichloroethane, 1,1,1-	0.11	0.11	0.12	0.12
Trichloroethane, 1,1,2-	0.05	0.05	0.05	0.05
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.25	0.25	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	24 [a]	10 [a]	24 [a]
Uranium	23 [a]	300 [a]	33 [a]	300 [a]
Vanadium	86	160 [a]	86	160 [a]
Vinyl Chloride	0.02	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091	0.091
Zinc	340 [a]	15000 [a]	340 [a]	15000 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4	1.4
Sodium Adsorption Ratio	5	5	12	12

Notes:

NA: Not Applicable; [a]: Leachate analysis is required only for contaminants that are identified as contaminants of potential concern in *excess soil* (as specified in subsection 1 (7) in Section A of PART II of this document).

*: The boron standards are for hot water soluble extract for all *surface soils*. For *subsurface soils* the standards are for total boron (mixed strong acid digest), since plant protection for *soils* below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded.

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include benzene, toluene, ethylbenzene and xylene (BTEX); however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6.1: Full Depth Excess Soil Quality Standards for Shallow Soils in a Potable Ground Water Condition

Volume Independent (Unit in µg/g)

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Acenaphthene	1.9	1.9	1.9
Acenaphthylene	0.093	0.093	0.093
Acetone	0.5	0.5	0.5
Aldrin	0.05	0.05	0.088
Anthracene	0.05	0.16	0.16
Antimony	7.5 [a]	7.5 [a]	40 [a]
Arsenic	11	18	18
Barium	390 [a]	390 [a]	670 [a]
Benzene	0.02	0.02	0.02
Benz[a]anthracene	0.5	0.5	0.83
Benzo[a]pyrene	0.31	0.31	0.31
Benzo[b]fluoranthene	3.2	3.2	3.2
Benzo[ghi]perylene	1.1	1.1	1.1
Benzo[k]fluoranthene	2.2	2.2	2.2
Beryllium	4 [a]	4 [a]	8 [a]
Biphenyl 1,1'-	0.05	0.05	0.05
Bis(2-chloroethyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-chloroisopropyl)ether	0.5 [a]	0.5 [a]	0.5 [a]
Bis(2-ethylhexyl)phthalate	5	5	9.9
Boron (Hot Water Soluble)*	1.5	1.5	2
Boron (total)	120 [a]	120 [a]	120 [a]
Bromodichloromethane	0.05	0.05	0.05
Bromoform	0.05	0.05	0.05
Bromomethane	0.05 [a]	0.05 [a]	0.05 [a]
Cadmium	1 [a]	1.2	1.9 [a]
Carbon Tetrachloride	0.05 [a]	0.05 [a]	0.05 [a]
Chlordane	0.05	0.05	0.05
Chloroaniline p-	0.5 [a]	0.5 [a]	0.5 [a]
Chlorobenzene	0.083	0.083	0.083
Chloroform	0.05 [a]	0.05 [a]	0.05 [a]
Chlorophenol, 2-	0.1	0.1	0.1
Chromium Total	160 [a]	160 [a]	160 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Chromium VI	8	8	8
Chrysene	0.33	2.8	2.8
Cobalt	22 [a]	22 [a]	80 [a]
Copper	140 [a]	140 [a]	230 [a]
Cyanide (CN-)	0.051	0.051	0.051
Dibenz[a h]anthracene	0.57	0.57	0.7
Dibromochloromethane	0.05	0.05	0.05
Dichlorobenzene, 1,2-	3.4 [a]	3.4 [a]	6.8 [a]
Dichlorobenzene, 1,3-	0.26	0.26	0.26
Dichlorobenzene, 1,4-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorobenzidine, 3,3'-	1 [a]	1 [a]	1 [a]
Dichlorodifluoromethane	1.5	1.5	1.5
DDD	0.55	0.55	0.55
DDE	0.26	0.26	0.52
DDT	0.078	1.4	1.4
Dichloroethane, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,1-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-cis-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloroethylene, 1,2-trans-	0.05 [a]	0.05 [a]	0.05 [a]
Dichlorophenol, 2,4-	0.1	0.1	0.1
Dichloropropane, 1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Dichloropropene,1,3-	0.05 [a]	0.05 [a]	0.05 [a]
Dieldrin	0.05 [a]	0.05 [a]	0.088 [a]
Diethyl Phthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphthalate	0.5 [a]	0.5 [a]	0.5 [a]
Dimethylphenol, 2,4-	0.43	0.43	0.43
Dinitrophenol, 2,4-	2 [a]	2 [a]	2 [a]
Dinitrotoluene, 2,4 & 2,6-	0.5 [a]	0.5 [a]	0.5 [a]
Dioxane, 1,4	0.2 [a]	0.2 [a]	0.2 [a]
Dioxin/Furan (TEQ)	0.000013	0.000013	0.000022
Endosulfan	0.04	0.04	0.04
Endrin	0.04 [a]	0.04 [a]	0.04 [a]
Ethylbenzene	0.05	0.05	0.05
Ethylene dibromide	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Fluoranthene	0.69	0.69	2.8
Fluorene	6.6	6.6	6.6
Heptachlor	0.05 [a]	0.05 [a]	0.05 [a]
Heptachlor Epoxide	0.05 [a]	0.05 [a]	0.05 [a]
Hexachlorobenzene	0.034	0.034	0.034
Hexachlorobutadiene	0.01	0.01	0.01
Hexachlorocyclohexane Gamma-	0.01	0.01	0.01
Hexachloroethane	0.01	0.01	0.01
Hexane (n)	0.05	0.05	0.05
Indeno[1 2 3-cd]pyrene	0.38	0.38	0.76
Lead	45	120	120
Mercury	0.16	0.27	0.27
Methoxychlor	0.05	0.05	0.05
Methyl Ethyl Ketone	0.5	0.5	0.5
Methyl Isobutyl Ketone	0.5	0.5	0.5
Methyl Mercury **	0.00097	0.00097	0.00097
Methyl tert-Butyl Ether (MTBE)	0.05	0.05	0.05
Methylene Chloride	0.05	0.05	0.05
Methlynaphthalene, 2-(1-) ***	0.096	0.59	0.59
Molybdenum	6.9 [a]	6.9 [a]	40 [a]
Naphthalene	0.081	0.09	0.09
Nickel	100 [a]	100 [a]	270 [a]
Pentachlorophenol	0.1	0.1	0.34
Petroleum Hydrocarbons F1****	17	25	25
Petroleum Hydrocarbons F2	10	10	10
Petroleum Hydrocarbons F3	240	240	240
Petroleum Hydrocarbons F4	2800	2800	3300
Phenanthrene	6.2	6.2	12
Phenol	2.4	2.4	2.4
Polychlorinated Biphenyls	0.3	0.3	0.3
Pyrene	0.79	1	1
Selenium	2.4 [a]	2.4 [a]	5.5 [a]
Silver	20 [a]	20 [a]	40 [a]
Styrene	0.05	0.05	0.05
Tetrachloroethane, 1,1,1,2-	0.05 [a]	0.05 [a]	0.05 [a]

Contaminant	Agricultural or Other Property Use	Residential/ Parkland/ Institutional Property Use	Industrial/ Commercial/ Community Property Use
Tetrachloroethane, 1,1,2,2-	0.05 [a]	0.05 [a]	0.05 [a]
Tetrachloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Thallium	1 [a]	1 [a]	3.3 [a]
Toluene	0.2	0.2	0.2
Trichlorobenzene, 1,2,4-	0.05	0.05	0.05
Trichloroethane, 1,1,1-	0.05	0.05	0.05
Trichloroethane, 1,1,2-	0.05 [a]	0.05 [a]	0.05 [a]
Trichloroethylene	0.05 [a]	0.05 [a]	0.05 [a]
Trichlorofluoromethane	0.17	0.25	0.25
Trichlorophenol, 2,4,5-	0.11	0.11	0.11
Trichlorophenol, 2,4,6-	4.4 [a]	4.4 [a]	10 [a]
Uranium	23 [a]	23 [a]	33 [a]
Vanadium	86	86	86
Vinyl Chloride	0.02	0.02	0.02
Xylene Mixture	0.091	0.091	0.091
Zinc	340 [a]	340 [a]	340 [a]
Electrical Conductivity (mS/cm)	0.7	0.7	1.4
Sodium Adsorption Ratio	5	5	12

Notes:

[a]: Leachate analysis is required only for contaminants that are identified as contaminants of potential concern in *excess soil* (as specified in subsection 1 (7) in Section A of PART II of this document).

*: The boron standards are for hot water soluble extract for all *surface soils*. For *subsurface soils* the standards are for total boron (mixed strong acid digest), since plant protection for *soils* below the root zone is not a significant concern.

**: Analysis for methyl mercury only applies when mercury (total) standard is exceeded.

***: The methyl naphthalene standards are applicable to both 1-methyl naphthalene and 2- methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

****: F1 fraction does not include benzene, toluene, ethylbenzene and xylene (BTEX); however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

APPENDIX E
FILL SOURCE REVIEW AND ACCEPTANCE PROCEDURES

Town Pit
788090 Grey Road 13, Town of the Blue Mountains
Soil Approval and Acceptance Plan

Preamble

The Town of The Blue Mountains (the Town) owns an aggregate pit rehabilitation site at 788090 Grey Road 13, near Meaford, Ontario. The facility is operating under Aggregate Resources Act Licence #4822 issued by the Ministry of Natural Resources and Forestry (MNRF). The pit is part of the comprehensive waste management facility at the property that includes material recycling areas and landfill cells.

The original Rehabilitation Plan for the Town Pit was created and filed in 1990 and has not been updated since the original application. The Rehabilitation Plan pre-dates the current reference to Standards in Ontario Regulations (O. Reg.) 153/04 (Records of Site Condition) or 406/19 (On-site and Excess Soil Management). As such, the current soil acceptance permitted by the MNRF is Table 1 Standards, which is generally background quality.

With the application to the MNRF for an amended Rehabilitation Plan to permit soil qualities that exceed the Table 1 Standard, an updated Soil Approval and Acceptance Plan has been prepared. The proposed Soil Quality permitted for acceptance has been informed using the generic Excess Soil Quality Standards (ESQS) of O. Reg. 406/19 and the "layer-cake" rehabilitation fill procedures outlined in *Best Practices for Aggregate Pits and Quarry Rehabilitation in Ontario* prepared by the Ontario Society for Professional Engineers (OSPE) and dated March 2021.

The Site Conditions Standards have been determined through applying the information from past investigations of hydrogeological and soil conditions at the site.

Soil Quality Approved for Acceptance

Until the amended Rehabilitation Plan is approved by the MNRF, the only soil acceptable for receipt at the Town Pit is soil that meets Table 1 quality. However, the proposed acceptance Standards for the facility are the generic Excess Soil Quality Standards from O. Reg. 406/19 and the OSPE "layer cake" rehabilitation approach. The Standards for use are the generic Table 2.1 ESQS for Industrial Use (upper 1.5 metres of soil), Table 4.1 ESQS for Industrial Use (below 1.5 metres but 1.5 metres above the static groundwater depth) and Table 6.1 ESQS for Industrial Use within 1.5 metres of the static groundwater depth. However, given the depth of applicable filling space, it is proposed to create layers of differing soil quality zones. This method of fill placement has been shown to be acceptable in the Scientific Study and Best Practices for Aggregate Pits and Quarry Rehabilitation in Ontario prepared by the Ontario Society for Professional Engineers (OSPE) and dated March 2021.

For simplicity, soils with quality that meet the Standards included in Tables 2.1, Table 4.1, and Table 6.1 of O. Reg. 406/19 are considered applicable for acceptance at the Town Pit. The Standards have been summarized in Table A.

Approval Procedures

For the acceptance of soil sources to be beneficially reused as fill for the Town Pit Rehabilitation, the following procedures will be followed:

- Documentation of the testing and analytical results for excess soil generated at Town projects and proposed to be transferred to Town Pit. Documentation should meet the requirement of the Project Area excess soil planning and have analytical results for an average of one sample for every 200 cubic metres (m^3) up to 10,000 m^3 and for every 450 m^3 beyond 10,000 m^3.
- Documentation will be provided to a QP sub-contracted by the Town for review and approval for acceptance.
- The QP will review the analytical results for comparison to the Acceptance Standards and determine which soil zone the source soil can be placed.
- QP review and acceptance will be provided in a Standard Form (refer to Attachment B) and provided to the Town Pit manager for file retention and to communicate with the excess soil Project Leader for the infrastructure project.
- A unique Project Area Profile Number will be issued for tracking purposes and correlation to the QP Review and Acceptance. All documentation associated with the acceptance and audit testing will reference the Profile Number.

Audit Sampling Procedures

For soil that has been approved for receipt and is being delivered to the Town Pit, audit samples will be collected to confirm the quality of the soil. The Audit Sampling Procedure will include:

- For each Project Area, audit sampling will be performed within the first 1,000 cubic metres and then at approximately 2,500 m3 and every 2,500 cubic metres thereafter (i.e., 5,000, 7,500, 10,000 etc.).
- The audit samples will be analyzed for the Excess Soil minimum testing requirements and will include metals and hydride-forming metals, pH, Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), and Petroleum Hydrocarbons Fractions F1 to F4 [PHCs (F1-F4)] including Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). Samples will also be analyzed for any other potential contaminants of concern identified in the Project Area characterization documentation, to be determined in the QP Review and Acceptance form.
- Samples will be collected by a QP subcontracted by the Town and will be forward to a Canadian Association of Laboratory Accreditation Inc. (CALA)-approved analytical laboratory for analyses.
- Sample collection procedures will meet industry standards and the sampling requirements outlined in the Schedule E of Regulation 153/04 as well as the Standard Operating Procedures (SOPs) established by the Qualified Person for the Town Pit.
- Analytical results of the audit samples will be reviewed by the Qualified Person.
- If the analytical results reported meet the Acceptance Standards, no further actions are needed until the next audit sampling volume threshold is approached or the project generating the excess soil is finished.

Reassessment and Rejection Procedures

- If the analytical results reported do not meet the Acceptance Standards, acceptance of the source soil will be immediately stopped, and additional soil testing will be completed from the stockpiles

generated during the delivery. Depending upon the volume of soil received, additional samples will be collected on multiples of 3 and will be billed back to the Project Area.

- If the additional audit samples also fail the Acceptance Standards, the stockpile will be quarantined, and the soil will be redirected to the landfill area of the overall facility, or another site approved to receive soil of this quality. The cost, approval and responsibility for redirection will be the responsibility of the Project Area.
- Quarantined soils will not be located for final placement as part of the rehabilitation and will be removed from the site as quickly as possible provided an alternate location can be arranged.

Attachment A

Acceptance Standards

Attachment B

QP Review Form and Client Profile

QP Review Form

Project Area Profile #_____

SOURCE SITE DETAILS:
Site Address:
Operator of Project Area:
Contact Details:
Project Area QP:
Expected Volume Available:
Soil Type:
Projected Dates Available:
DOCUMENTS PROVIDED:
Assessment of Past Uses:
Soil Characterization Report:
Excess Soil Destination Assessment Report:
QUALIFIED PERSON REVIEW:
Analytical Results Reviewed (Y/N)?
Which Table do the Results Meet (Table 1, Table 2.1, Table 4.1, Table 6.1)?
Number of Samples Meet 406/19 Volume Requirement (Y/N)?
Minimum Analytical Requirements Met (Y/N)?
Other Comments:
Accepted (Y/N)?
Name of QP Reviewed:
Signature:
Date:

APPENDIX F
ON-SITE TRAFFIC MANAGEMENT PLAN
(TO BE ADDED)

APPENDIX G
FILL CELL IDENTIFICATION PLAN
(TO BE ADDED)