Soil Study (Agrology)

Introduction

Soil studies involve comprehensive evaluations of soil quality, encompassing the identification of potential contaminants, assessment of environmental risks, and management of hazards at development sites. These studies aim to analyze soil characteristics, determine its suitability for construction, and ensure compliance with regulatory standards. The primary objective is to enable informed decision-making throughout site development by pinpointing potential risks associated with ground conditions.

What does a Agrologist do?

Agrologists evaluate soil quality and characteristics to determine its suitability for construction and to identify potential environmental risks. This includes assessing soil for contaminants and understanding its physical properties.

The main tasks that agrologists address include:

- **Soil Sampling and Analysis**: Collecting and analyzing soil samples for contaminants and physical properties.
- **Assessment of Soil Stability**: Evaluating soil stability and suitability for construction.
- **Identification of Environmental Hazards**: Identifying and managing potential soil contamination and environmental risks.
- **Recommendations for Soil Management**: Providing recommendations for soil management, remediation, and construction practices.

Why is it requested?

- To identify potential risks related to ground conditions.
- To ensure site suitability for construction and compliance with environmental regulations.

Scope of Work

1. Site Disclosure Statement (SDS)

Description: An SDS is required if a Schedule 2 activity occurred (Schedule 2: Contaminated Sites Regulation) on the site or if any of the following are proposed:

- Selling a property
- Applying to a municipality or approving officer
- Decommissioning or ceasing operations on a site
- Involved in insolvency or bankruptcy proceedings
- In foreclosure or receivership of a site
- Ordered to by a director

When Needed: At time of application, depending on local government's form and process.

2. Phase 1 Environmental Site Assessment (ESA)

Description: The Phase 1 ESA involves a thorough review of the site's history and a preliminary site inspection to identify potential environmental concerns.

When Needed: This phase is required when there is a need to identify potential contamination risks due to previous land uses, especially for sites with known or suspected contamination.

Components:

- Historical Records Review: Examine historical records and previous land uses to identify potential contamination sources.
- Site Inspection: Conduct a site inspection to identify visible contamination sources.
- Interviews: Interview current and past property owners and occupants.
- Phase 1 ESA Report: Prepare a report summarizing findings and recommendations for further action.

3. Phase 2 Environmental Site Assessment (ESA)

Description: The Phase 2 ESA investigates the extent of contamination identified in Phase 1 through subsurface investigation and laboratory analysis.

When Needed: This phase is needed if Phase 1 identifies potential contamination that requires further investigation to determine the extent and impact of the contamination.

Components:

- Subsurface Investigation: Conduct soil, groundwater, and vapor sampling.
- Laboratory Analysis: Analyze samples for contaminants.
- Extent and Impact Assessment: Assess the extent and impact of contamination.
- Phase 2 ESA Report: Prepare a detailed report with findings and recommendations for remediation or further investigation.

4. Detailed Site Investigation (DSI) / Phase 3 ESA

Description: This phase involves a comprehensive assessment and remediation of identified contamination, including risk assessments and development of a remediation plan.

When Needed: This phase is required if Phase 2 confirms significant contamination that necessitates detailed investigation and remediation.

Components:

- Detailed Investigation: Conduct a thorough investigation of contamination extent and pathways.
- Risk Assessment: Determine potential impacts on human health and the environment.
- Remediation Plan: Develop and implement a remediation plan.
- Monitoring and Verification: Monitor and verify the effectiveness of remediation.
- DSI/Phase 3 ESA Report: Prepare a final report with recommendations for site management.

Report Details

- Executive Summary: A brief summary of findings and key recommendations.
- Terms of Reference: Outline of the scope of work and specific objectives of the soil study.
- Project Details: Background information, site description, and overview of proposed development plans.
- Site Investigation: Detailed description of site visits, sampling locations, and field observations.
- Laboratory Testing: Results of soil and groundwater testing, including chemical analysis.
- Evaluation and Analysis: Interpretation of data, assessment of contamination extent, and evaluation of site conditions.
- Design Recommendations: Specific recommendations for soil remediation, site management, and construction practices.
- Plans/Drawings/Statements: Site plans, sampling locations, and remediation plans.
- References/Appendices: List of literature references and appendices with detailed data, laboratory results, and supplementary information.

What is generally required at each stage in the development process?

The following outlines what may be required of an agrologist on a project IF there is a probability of contamination identified (Disclosure Statement or Phase 1), and/or if contamination of found during a Phase 2 assessment.

Due diligence / securing land	• Discussion with an agrologist may need to occur depending on available due diligence and the site's history. • Phase 1 ESA is required for bank funding.
Concept Development	• Discussion with an agrologist may need to occur depending on available due diligence and the site's history. • Phase 1 ESA is required for bank funding.

Rezoning	• Depending on the site history and complexity, an agrologist may fill out the Site Disclosure Statement (SDS) or provide the owner/applicant with the information. • A Phase 1 may be required.
Development Permit	• A Report may be needed to meet the guidelines of Development Permit Areas that are in place to protect the natural environment, farmland and/or aquifers. • SDS • Phase 1 ESA
Subdivision	• Depending on the site history and complexity, an agrologist may fill out the Site Disclosure Statement (SDS) or provide the owner/applicant with the information. • Phase 2 ESA • DSI/Phase 3 ESA
Building Permit	• Phase 2 ESA • DSI/Phase 3 ESA
Construction	• Monitoring and Reporting