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STREAM RESTORATION AND SEDIMENT DREDGING PROJECTS

GUIDANCE ON THE NEW SOIL REGULATION AND CLIMATE
BENEFITS OF BENEFICIAL REUSE.

Hannah Chessell, P.Geo.

O. Reg 406/19 – Excess Soils



A better framework for the management and reuse of excess soil generate from a Project



“Soil, or soil mixed with rock, that has been excavated as part of a project and removed from the project area for the project”



Certain nuances of the Regulation for Public Bodies (e.g. A Municipality, local board or conservation authority)



Projects & the Excess Soil Regulation



Typical Projects

- Soil is removed from Project Area
- Soil is moved from one Project Area to another Project Area
- Soil is imported
- Capital and non-capital projects
- Includes any removal of liquid soil or sediment from a surface water body”



Planning Exempted Projects

- Soil from emergency works
- Soil from Fit State of Repair works
- “Low-risk” Sites
- And others...



Excess Soil Planning Documents

Assessment of Past Uses

Sampling and Analysis Plan

Soil Characterization Report

Excess Soil Destination Assessment Report



Project Leader Responsibilities



Ultimately responsible for making decisions relating to the planning & implementation of the project



Responsible for any excess soil removed from projects areas



Procedures, Policies & Training



Project Leader Key Responsibilities

Getting consent from the Reuse Site which must have a beneficial reuse purpose

Providing consent if the Organization is the Owner/Operator of the Reuse Site

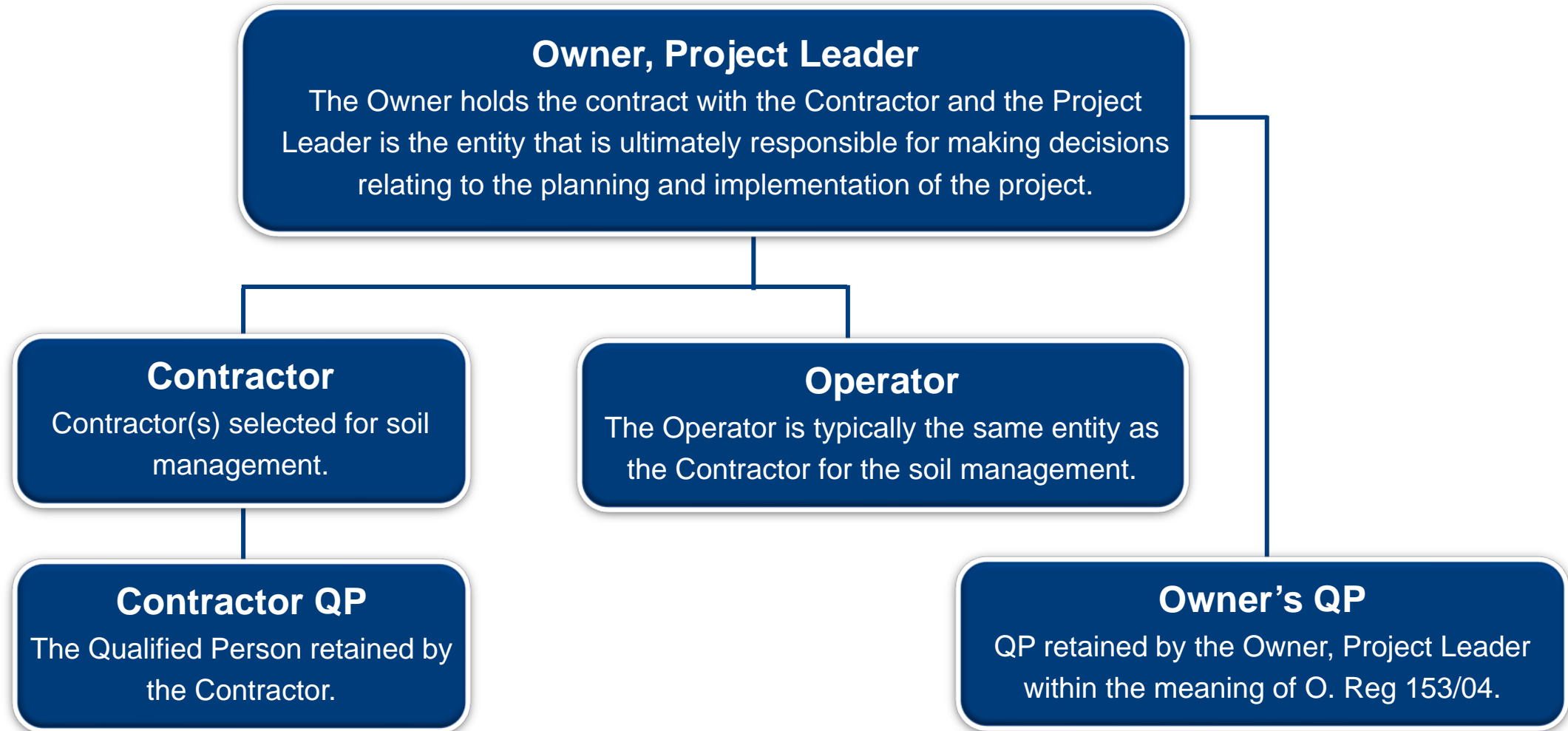
Monitoring for soil circumstances different than intended

Developing and implementing a soil tracking system

Developing a procedure for excavation observations

Making Declarations (on applicable projects)

Who's Who Responsibility

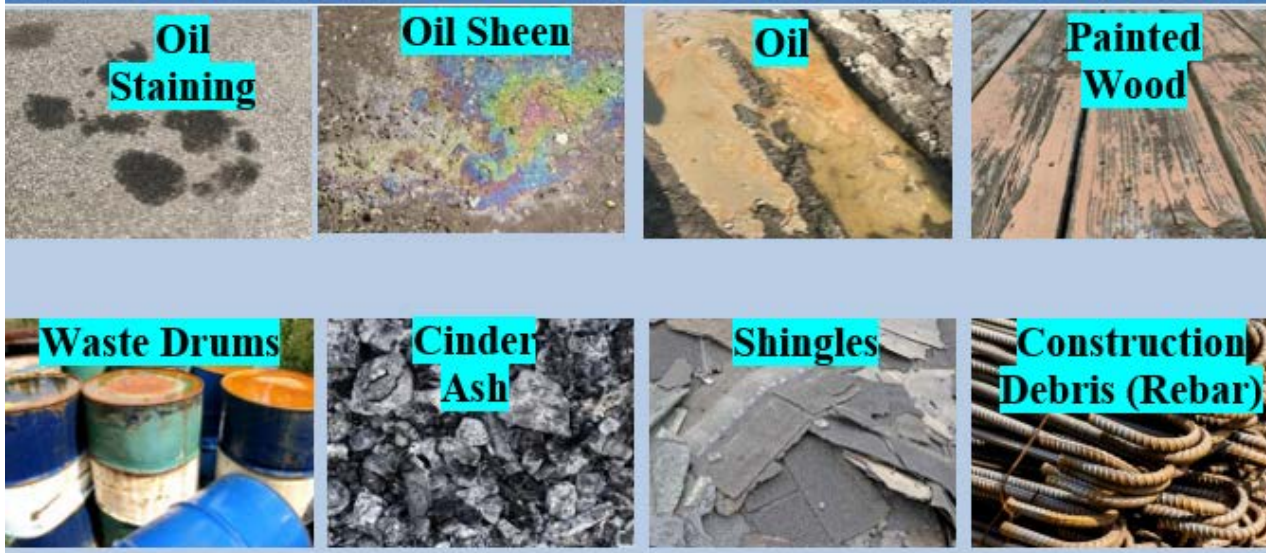


Excess Soil Project Responsibilities

- ✓ Site Soil Testing and Planning Documentation
- ✓ Project Area Specific Soil Quality Requirements and Soil Management/Handling
- ✓ Import Soil Source
- ✓ Import Soil Quality
- ✓ Truck Observation, Tracking and Haulage Records
- ✓ Excavation Observations
- ✓ Registry
- ✓ Soil Destination

Observations & Tracking

Visual Observations



- Inspect
- Document
- Segregate
- Plan

<Insert your company logo here>
Hauling Record

P.O/Job/Ticket # _____

GENERATOR (PROJECT AREA)			
Contact Name:		Tel:	
Generating Company		Address	
City, Province		Postal Code	
GENERATING SITE (PROJECT AREA)			
Pick-up Location:			
Date Loaded:		Time Loaded:	
		Lat.:	
		Long.:	
Soil Information			
Profile/ID #:		Materials Type	
		<input type="checkbox"/> Compost <input type="checkbox"/> Clean fill <input type="checkbox"/> Other:	
		<input type="checkbox"/> Contaminated soil <input type="checkbox"/> IC&I	
Quantity Loaded		Material Description:	
Yards:		Tons:	
Meters:		Tonnes:	
Contact Name:		Tel:	
		Email:	

From ONEIA



Beneficial Reuse Options and Climate Benefits



Beneficial Reuse Options – On Site

- Reuse On Site is always preferred
- Develop Strategy in Planning Stages
 - Field Investigations
 - Understand your material
 - Understanding you project setting
- Backfill, Berms, cover material, landscaping and restoration other innovative approaches?
 - Landscape Architect



Managing Excess Soil – Beneficial Reuse

- Reuse Site
- Class 2 soil management site
- Class 1 soil management site

“Excess soil” means soil, or soil mixed with rock, that has been excavated as part of a project and removed from the project area for the project



Repurpose soil rather than disposal

Beneficial Reuse Attributes

Soil Reuse	Class 2 SMS	Class 1 SMS
<ul style="list-style-type: none">• Divert soil from becoming a waste• Primary use must not be disposal• Improve site for future uses (multipurpose)• Improve site for future sale	<ul style="list-style-type: none">• Divert soil from becoming a waste• Manage excess soils where there is a lack of space at project area• Source of soil for other projects requiring fill	<ul style="list-style-type: none">• Divert soil from becoming a waste• Can accept soil from more than one project leader• Process impacted soil to reuse for other projects requiring fill• A suitable Class 2 site is not available (Soil Bank)

Comparing Soil Management and Reuse Sites

	Soil Reuse	Class 2 SMS	Class 1 SMS
Beneficial Reuse	Required	Required for soil destination	Required for soil destination
Owner	Not limited, can accept	Project Leader/Public Body for source soil	Not limited
Soil Placement	Final Placement	Temporary <2 years*	Temporary
Volume	Not limited	<10,000 m ³ at one time	Not limited
Identify Beneficial Purpose	Yes	Yes	No
Permit	Municipal or CA	Not required	Provincial ECA
Soil Processing	No	Yes (limited)	Yes
Soil Treatment	No	No	Yes
On-Line Registration	Yes (>10,000 m ³)	No	No

*except infrastructure projects

Commonalities Between Sites

	Soil Reuse, Class 2 SMS, and Class 1 SMS
Soil Tracking	✔ Yes
Soil Quality	Excess Soil Standards or Site-Specific
Soil Inspection	✔ Yes
No Adverse Effect	✔ Yes
Site Controls (fencing, etc.)	✔ Yes

Local Waste Transfer Facility

- Receives waste soils and other waste materials through typical “field operations”
 - E.g. Excess soil from Park maintenance activities (sports fields, gardens, grave burials, etc.)
- Receives imported soil materials
- Testing, documentation, and planning vary
- Materials handling, tracking, and documentation



Soil Reuse Climate Benefits

- Reduce GHG emissions from the Transportation of Soil
- Reduce Illegal Dumping
- Decrease the Amount of Soil going to Landfills



Non- Applications



Non-Application of the Regulation



The reason for excavating the soil that will become excess soil is one of the following:

1. Danger to the health or safety of any person.
2. Impairment or serious risk of impairment of the quality of the natural environment for any use that can be made of it.
3. Injury or damage or serious risk of injury or damage to any property or to any plant or animal life.
4. The duty imposed by subsection 93 (1) of the Act.
5. An order made by any authority with jurisdiction to make the order.
6. Maintaining infrastructure in a fit state of repair, except if the excavation of soil is from a stormwater management pond for the purpose of maintaining the facility in a fit state of repair.



“drainage works” includes a drain constructed by any means, including the improving of a natural watercourse, and includes works necessary to regulate the water table or water level within or on any lands or to regulate the level of the waters of a drain, reservoir, lake or pond, and includes a dam, embankment, wall, protective works or any combination thereof;

**Non-
Application**

Clarification was also made to the definition of “infrastructure” to clarify that it includes drainage works under the *Drainage Act*

What is NOT Soil under the Regulation?

Non-Soil Material Type

- Topsoil with a permit under ARA (Crown Land)
- Peat from peat extraction operation
- Compost (unless blended with soil)
- Aggregate
- Excess Soil placed on bottom of waterbody
- Non-soil landscaping products like bark fines, terraseed, engineered fibre products)

Volumes

- <math><100\text{m}^3</math> directly taken to waste disposal site (just need hauling record/BOL)

Non-Soil Types



Engineered
Wood Fibre



Bark
Fines



Mulch



Vermicompost



Fertilizer



Terraseed

Topsoil

- A topsoil exemption exists in the Regulation for topsoil from a licensed Pit or Quarry (under the Aggregate Resources Act).
- Otherwise, the topsoil is subject to the Regulation and needs to meet soil quality standards
 - May require analytical testing (Due diligence or Regulatory Driven)
 - Excess soil needs to be tracked (each truck)
- This would also apply to blended soil or planting soil



Liquid Soil Considerations



Liquid Soil

Description

Wet soil or sediment that has a slump of more than 150 millimetres (mm)

Transportation

Trucks with a locking system

Reuse

Any reuse Site accepting liquid soil needs to have a site-specific instrument in place to accept the liquid soil

Storage


Liquid soil must be stored: in a location that is accessible for inspection; stores no more than 10,000 m³ of liquid soil at any one time; and is stored in a leakproof container on an impermeable surface



Dewatering

Can Dewater or solidify liquid soil derived from wet excavations to meet slump test requirements prior to transportation for off-site or on-site reuse.

Dewatering Could include:

- Geotextile tube dewatering
- Mechanical filter press dewatering
- Passive aeration and dewatering
- Additive based treatment through mixing 
- Soil turning
- Size-based sorting of Liquid Soil and Debris

Additive Based Dewatering

- non-polymer
(*such as non-pressure-treated wood sawdust or bentonite*)
- natural polymer
- synthetic polymer.

May need to Engage a QP!



Sediment Dredging

Considerations:

- Excess Soil Planning Documents
 - Need to consider Property Use
- Transportation and Handling of liquid soil
- Identification of a reuse Site
- Registration
- Exemptions



Stormwater Management Pond Cleanout

- Liquid soil could be generated from activities such as sediment dredging or stormwater management pond (SWMP) cleanout
- Limited options for liquid soils disposal
- Regulation indicates that SWMP be segregated into stockpiles by zone and dewatered or solidified
- Complications: polymer addition, dump trucks, stockpile sampling



Outcomes: Legal instruments can be implemented (e.g. ECA, site alteration by-laws)

Stream Restoration, Creek and Shoreline Work

- May require net import or export of excess soils
- Best Management Practices
- Planning for Beneficial Reuse Opportunities
- Storage Considerations



Overall Benefits of Addressing Excess Soil



Sustainability



**Environmental
Stewardship**



Social Benefits



Governance



**Potential Cost
Savings**



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