Soil Management: An Industry Perspective on Early Engagement Seminar Ontario Regulation 406 / 19

TCA's Young Construction Leaders (YCL) and Environmental Committee
Virtual Session
June 22, 2021

Housekeeping Items

- **All attendees will be muted**
- **Feel free to enter your questions anytime in Q&A tab at bottom of screen**
- **Event will be recorded and shared with attendees**

Overview: Excess Soil Laws and Guidance

- **O. Reg. 406/19: On-Site and Excess Soil Management Regulation (“Excess Soil Reg.”)**
- **Amendments to O. Reg. 153/04 (RSC)**
- **Amendments to Reg. 347 and O. Reg. 351/12 (Waste Management)**
- **Rules for Soil Management and Excess Soil Quality Standards (“Soil Rules”)**
- **Beneficial Reuse Assessment Tool**
- **Rationale Document for Reuse of Excess Soil at Reuse Sites (Guidance)**

Willms & Shier | Environment Indigenous Energy Law

Who is Menard Canada?

- Design build ground improvement contractor
- Subsidiary of VINCI Construction
- In Canada, formerly Geopac (est. 1971)
- 6 Canadian offices, ~75 projects per year

  - Vancouver, BC
  - Calgary, AB
  - Hamilton, ON
  - Toronto, ON
  - Ottawa, ON
  - Montréal, QC

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Canada | est. 1971

Excess Soils in the Foundation Industry

- **Weak / compressible soils become excess soils**
  - Bulk excavation
  - Caissons / CFA piles, etc.
- **Unavoidable soil generation**
  - Basement excavation / shoring
  - Foundation excavation
  - Servicing
  - Etc.

Early Engagement Strategies – Holistic Project Review

- **What is the cause of soil generation?**
  - Uncontrolled fill?
  - Weak / compressible soil layers?
- **Can you modify your design to minimize soil volumes?**
  - Modify site grading to balance cut/fill?
  - Relocate structures to avoid poor soils
- **Ground improvement methods?**
  - Significantly reduce excess soil volume
  - Increase bearing capacity = less excavation

Soil Densification

Densification through impact energy or vibrations

Rapid Impact Compaction

Dynamic Compaction

Vibro Compaction

Soil Reinforcement – Aggregate Piers

30+ m treatment

15+ m treatment

7+ m treatment

Soil Reinforcement – Controlled Modulus Columns™

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McINTOSH PERRY

EARLY EXPERIENCE WITH EXCESS SOILS REGULATION

PUBLIC AND PRIVATE SECTOR ISSUES

Mark Priddle, P.Geo., Senior Environmental Geoscientist

- "Excess Soils" Advisor (internal and external) in McIntosh Perry's Infrastructure Vertical
  - Dealing mainly with public sector clients (MTO and municipalities)
  - Also providing advice on private sector developments with excess soils generation
  - Developing of investigation plans to classify soils
  - Assisting with tendering to address regulatory requirements

EXCESS SOILS

McIntosh Perry has been dealing with adoption of regulatory requirements for a number of public bodies (MTO and others) and private sector clients …

Questions and experiences vary

PUBLIC SECTOR ISSUES

MTO is a large client of McIntosh Perry

- MTO is likely the largest single generator of excess soils in the province…!
  - How can I minimize excess soil?
  - What is the “Project Area”?
  - Do contractors have reuse or transfer sites readily available around the province? If yes, can we find out where they are and what they can accept?
  - Can I transport excess soil between MTO properties without following the Regulation?
  - What is a “Settlement Area” and how does this impact an MTO infrastructure project?

PRIVATE SECTOR ISSUES

Numerous large and small developers are generating excess soils

- Many urban development projects have limited capacity for re-use of soil on site
  - How does early characterization help me? All this testing seems expensive?
  - Does a regular Phase II ESA provide enough information to comply with the Regulation when it comes to excavation and generation of excess soils on my site?
  - What about natural background concentrations?
  - Tell me how soil tracking works?
  - Can I take soil to a vacant lot with a “Clean Fill Wanted” sign?

BIDDER'S REQUIREMENTS

A Tender should require the following:

- Excess Soil Management Plan (ESMP) which includes sampling and analysis plan
- Identification of a *Qualified Person* by the Contractor
- Identification of sites for ultimate disposition of soil (landfill, reuse, other)
- Soil handling procedures.

EXCESS SOIL MANAGEMENT PLAN

Possible Requirements for ESMP in Tender

- Construction staging approach & methodology to deal with excavated and excess soil.
- A soil sampling and testing program developed by the Contractor's QP.
- Guidance to the Contractor for identifying and delineating soil in the field
- Provision of forms and documentation in a timely manner to CA, to show that each load to landfill contains excess contaminated material and has been authorized by the QP and CA.
- Identification of temporary soil (contaminated and unimpacted) storage locations and measures to mitigate impacts to human health and the environment (if applicable).
- Identification of suitable receiving site(s) for excess material based on soil quality
- Certification by the QP that site-generated materials being transported off-site will not result in negative environmental impact to the receiving environment

SUMMARY

Think ahead

- Get a QP onboard early
- Follow O.Reg. 406/19 testing requirements during ESA stage
  - ➢ Need to know which soil will become excess …
- Consider maximizing reuse of soil on-site during design stage

Excess Soil Management

- Tender should clearly outline process and biddable items related to excess soils
- ESMP should form part of a bid
- Have a plan for testing and tracking during construction

Soils Management

O.Reg 406/19 – Supporting Beneficial Soil Reuse

- GFL's involvement in Excess Soils regulation
  - Both as a receiver and generator of excess soils
    - Generator – Shoring, excavation, civil and environmental remediation division
    - Receiver – excess soil disposal, liquid soil disposal
    - Supplier – large supply of excess soils available for reuse at projects with soil deficits
- Support projects completed by all sectors relating to infrastructure, real estate development and contaminated sites
- Soil management has become increasingly important esp. with new regulation
  - Assisting in project consultations to support soil management optimization
  - Educating clients/industry of different soil classifications and reuse streams
  - Actively involved in industry discussions; roundtables, stakeholder groups, seminars

EXCESS SOILS OPTIONS

- GFL Soil Management facilities operating in ON for over 14 years
  - Accepting and managing; Excess soils (O.Reg 406) and Waste soils (O.Reg 153 and 347)
- (7) Class 1 Soil Management facilities across ON
  - Dorchester / Toronto (4) / Brighton / Moose Creek
  - Accept and manage all types of soils
- Re-Use Site Mount Albert Pit (MAP)
  - T2 ICC (No EC/SAR limits) Reuse site
  - Projects must meet inbound criteria/requirements
- 4 Liquid soil disposal facilities (ECA for each site)
  - Brampton / Rexdale (Toronto) / Pickering / Bowmanville
- Soil Reuse / Supply capabilities
  - supply projects that have soil deficits (ie. Cherry St. LFP)

Why early engagement with Receiving Sites (RS) is Important

- O.Reg 406/19 – Receiving Site MUST provide 'written consent' to Project leader/Generating Site
  - Generator must provide any information asked by RS in order to provide consent/approval

- Understand no 2 receiving sites are the same:
  - All have site specific licenses or permits
  - All have some sort of limitation (volume, quality, access, hours, etc..)
  - All have different receiving requirements (sampling, review, etc)

Key recommendations for Early Engagement with RS

- Approach RS as a partner
  - RS can be a solutions provider and enhance project efficiencies
- Understand the identified RS's requirements for approval/acceptance well in advance
  - Can save time and $
  - If they cannot accept (closed or unacceptable quality) – What's PLAN B?
- Identify any additional cost saving measures
  - Exemptions? Flexibility in accepting multiple soil types
  - Other services ie. Hauling, fill supply, etc..

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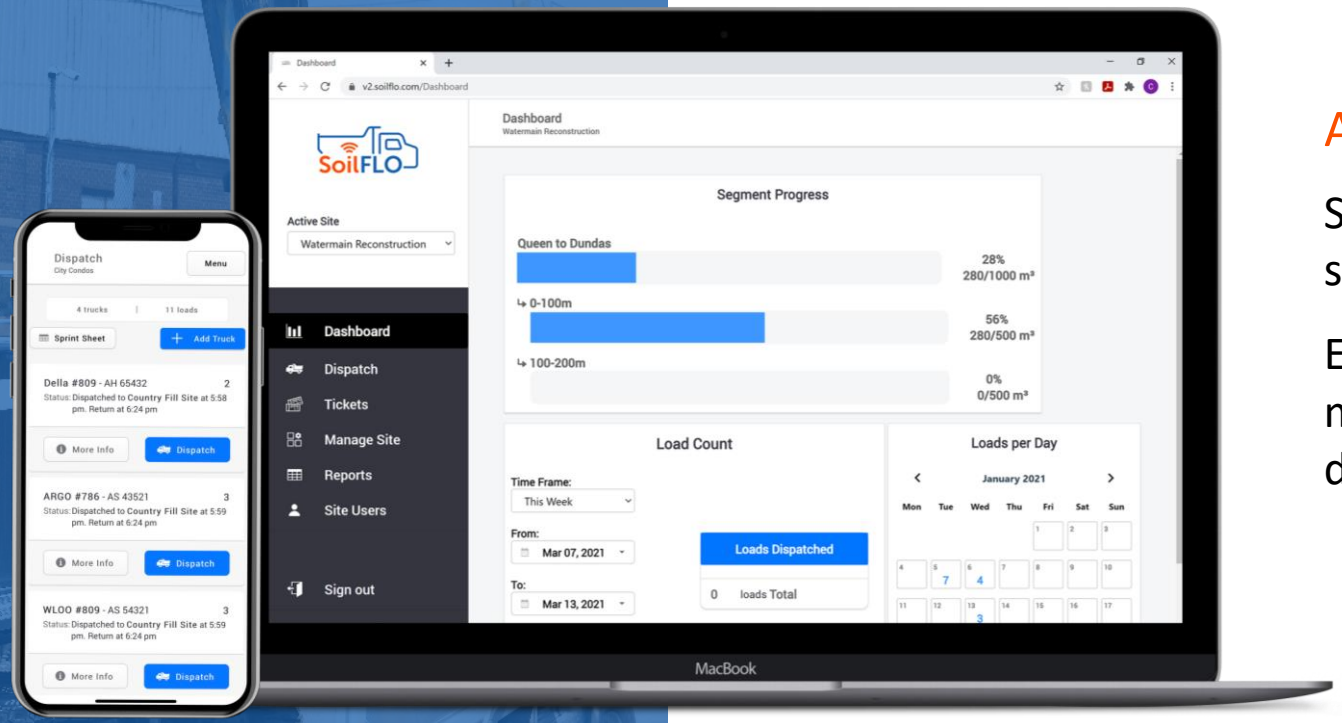
Better Earthworks Management

Through Electronic Tracking and Early Planning



About us

SoilFLO is the leading earthworks software in Ontario.

Each day, thousands of loads are managed by contractors, developers and QP’s using SoilFLO.

Used by Industry Leaders

OXFORD
World-leading developer

Region of Waterloo

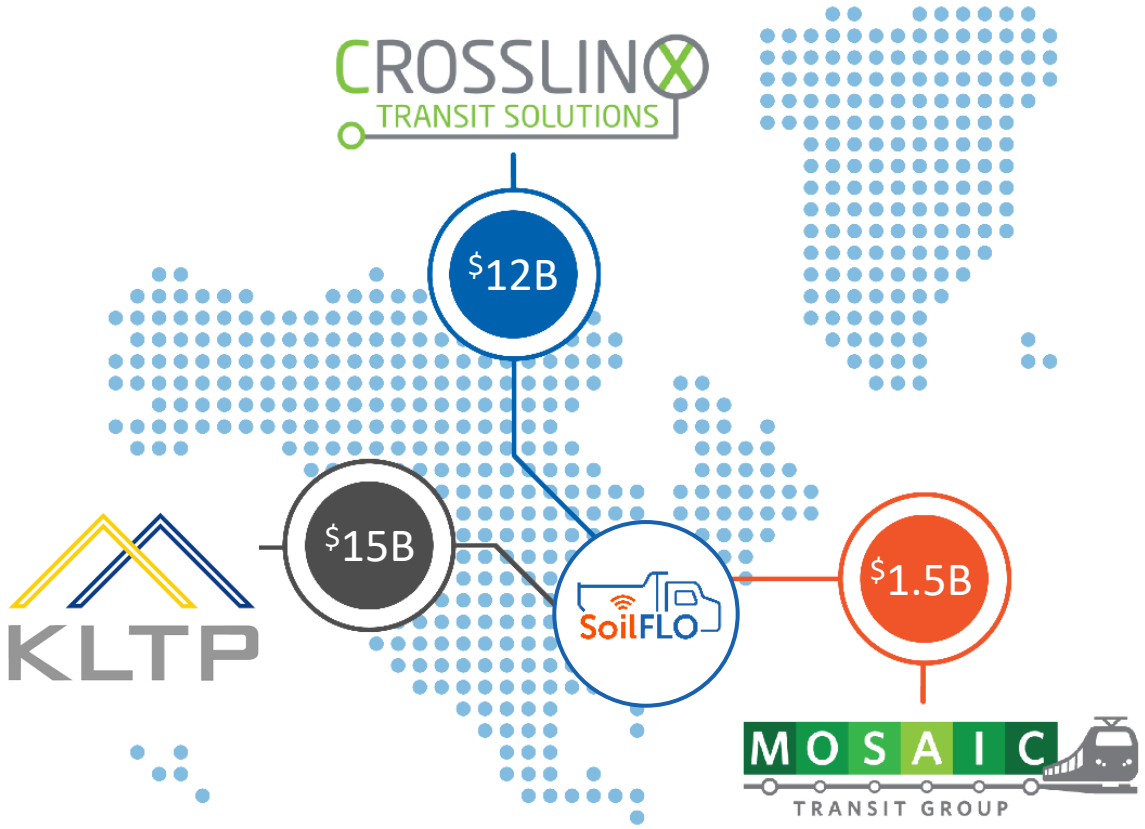
CONDRAIN GROUP
Managing over 1000 loads / day

TAGGART CONSTRUCTION LIMITED
Top 20 Contractor in Canada

PRIESTLY DEMOLITION INC
Rehabilitating Toronto's Waterfront

LafargeHolcim
Quarries across Ontario

Used on Canada's Largest Infrastructure Projects



The SoilFLO Perspective: Ontario's New Regulation – 406/19

Enhanced testing procedures

Definition of qualified professionals

Clear rules on managing levels of contamination and reuse

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Tracking and record keeping

O. Reg 406/19 - Checklist

01	Soil Management Plan
02	Traffic and Transportation Plan
03	Soil Sampling and Analysis
04	Written Consent from Owners & Operators of Receiving Sites
05	Written confirmation Each Hauler will Possess Load Information
06	Excess Soil Destination Assessment Report
07	Develop and Implement a Tracking System
08	Full Chain of Custody Hauling Record
09	Written Notice of Project End

Challenge: Ensuring collection and 7 year retention

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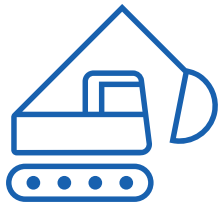
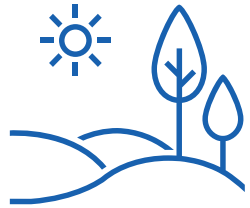
Tracking Details – 8 Data Points



Source Location
Time of Dispatch
Person who Dispatched

Truck Details
Soil Type



Disposal Location
Time of Receipt
Person who Received

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Collected, Stored & Managed

Contact Us

www.soilflo.com

Kevin Goldberg, President
(416) 904-1180
kevin.goldberg@soilflo.com

Colton Vandenberk, Sales Manger
(519) 871-1241
colton.vandenberk@soilflo.com

Contact Information

Neil Isenegger, P.Eng

Western Ontario Business

Unit Manager, Menard

T: (365) 323-9534
E: neil.isenegger@menardcanada.ca

Mark Priddle, P.Geo., FGC

Senior Consultant,

McIntosh Perry

T: (613) 714-0801
E: m.priddle@mcintoshperry.com

Ryan Moniz

Director of Sales – Soils Division

GFL Infrastructure Group Inc.

T: (905) 326-0101
E: rmoniz@gflenv.com

Kevin Goldberg

President, SoilFLO

T: (416) 904-1180
E: Kevin.goldberg@soilflo.com

Matthew Gardner

Partner
Willms & Shier Environmental Lawyers LLP

T: (416) 862-4825
E: mgardner@willmsshier.com

Q&A