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The Evolution of ESC Monitoring and Environmental Risk Management

Where We Were, Where We Are, Where We're Headed and What We Need to Do to Get There

Presentation for TRIECA
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Objectives

1. Demonstrate evolution and progress made in ESC Monitoring and Environmental Risk Management on construction projects over past decade.

2. Discuss Project to demonstrate benefits of using a pro-active vs. reactive approach to environmental management.

3. Discuss areas where further improvement is needed moving forward.

10 years ago…

State of Environmental Management on Construction Projects
No line item for environmental management in tender documents
No requirement for environmental inspector/monitor during construction
No requirement for temporary sediment ponds
No specifications related to professional qualifications for ESC monitors and inspectors
No guideline for ESC monitoring plans/programs
Inconsistent or lack of requirement for hydrogeological studies for land use approvals
No training programs designed for contractors about environmental management on construction sites

Project Examples

1. **Block Development: Reactive Approach**
   (over 10 years ago)

2. **Block Development: Pro-active approach**
   (currently under development)

Project Example 1: Block Development (2005/06)

Background:

- Over 100 acre development
- Developer retained engineering firm for servicing design, ESC plans and ESC inspection.
- Contractor retained to install ESC measures, initial site servicing installations and road paving.
- ESC measures – minimal (mainly silt fencing)
- No temporary sediment ponds on site.
- Entire property stripped and graded all at once.
- Hydrogeological studies not required for land use approval.

Project Example 1: Environmental Incident #1

Project Example 1: Environmental Incident #2

Project Example 1: Environmental Incident #3

Project Example 1: Outcomes

- **Delays** – almost 1 year delay before they could complete installation of services near creek
- **Several orders** issued by TRCA and DFO to restore habitat (no fines or charges laid)
- **Emergency Works** – time and money
- Didn't help **relationship with agencies**
- **Costs** – on order of $100,000s of dollars in lost production time, cleanup costs and development delays

Project Example 1: Lessons Learned

- More comprehensive ESC measures needed in design
- Temporary sediment pond needed prior to SWM pond construction
- Dedicated environmental inspector/monitor required throughout construction on weekly or bi-weekly basis
- Phased clearing and grading of site when feasible
- Complete hydrogeology & geotechnical report pre-construction
- Confirm presence of all natural vs. man-made watercourses

Fast Forward to Present

Then	Now
No line item for environmental management in tender documents	**Getting better, but not there yet.** Not consistently applied on tenders.
No requirement for environmental inspector/monitor during construction	**Getting better, but not there yet.** Not explicit in all tenders or required in permits or municipal land use approvals.
No requirement for temporary sediment ponds	**Now standard requirement.** Design standards may need improvement to handle more intense storm events.
No specifications related to professional qualifications for ESC monitors and inspectors	**Getting better, but not there yet.** CISEC now available in Canada; but not mandatory.
No guideline for ESC monitoring plans/programs	**Getter better, but not there yet.** Greater Golden Horseshoe CA guideline; more needed in rest of Ontario.
Inconsistent or lack of requirement for hydrogeological studies for land use approvals	**Getter better, but could be improved.** More consistent requirements across municipalities.
No training programs designed for contractors about environmental management on construction sites	**Getting better, needs broader reach.**

Project Example 2: Block Development (2013 ongoing)

- >700 single detached single family residential development 200 acres
- 3 phases of development over time, on-going
- Red side dace habitat identified in adjacent watercourse
- Earlier engagement by the developer with environmental consultant:
  - Liaison between agencies (MNRF, CA), developer and engineer for permit application
  - Developed monitoring program
  - Dewatering Monitoring and Reporting
  - Obtained Discharge Authorization
  - ESC inspections weekly, pre- and post-rain events
  - Attended biweekly construction meetings on site
  - Obtained fish timing window extensions from MNRF

Project Example 2: Block Development (2013 ongoing)

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Project Example 2: Outcomes

- Increased due diligence resulted in decreased liability and risk
- Increased efficiency for project as whole – fewer delays, fewer unexpected costs
- Improved relationship with agencies due to transparency and communication
- Fewer environmental incidents and less extensive impacts
- Minimize impacts to natural environment
- Provided strategic advice to developer to help save costs:
  - Advised to switch dewatering discharge to sanitary sewer, once installed. Saved money on water quality analytical costs and monitoring for discharge to watercourse
- Proactive engagement on ESC: worked with engineer to adjust drawings throughout construction, monitoring requirements, seed mix for stabilization, locations of ESC and types, etc.

Moving Forward

- Clear, explicit environmental monitoring specifications and requirements in tender documents and development;
- Develop consistent water quality monitoring criteria across municipalities and regions;
- Recommend requirement for third-party environmental inspector to ensure unbiased and thorough inspections and recommendations to proactively prevent spills;
- Continue to promote training programs geared toward construction contractors and developers
- More cross-industry collaboration efforts to gain perspectives from all sectors to help improve environmental practices in land development and construction

In Closing…

- Construction industry wants to be part of solution to protect the environment
- Greater collaboration between developers, engineers, contractors, agencies and environmental consultants
- Work toward more sustainable development projects
- Climate change effects require increased diligence in near future

Connecting all the environmental pieces

of the construction industry puzzle

Questions?

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