

Meeting Minutes



ARCWG Sub-Meeting: Hydrology/Hydrogeology

Location:	Caledon Town Hall, Mayfield-Palgrave Room 6311 Old Church Rd, Caledon East, ON
Date:	April 30, 2024
Time:	10:30am – 12:00pm

In Attendance

Joe Nethery (JN), David Sylvester (DS), Dorothy Di Berto (DD), Marsha Paley (MP), Neil Morris (NM), Ron Scheckenberger (RS), Chris Neville (CN), Jane Thompson (JT), Ian Sinclair (IS)

Agenda Items

Ron's Presentation

Introduction

- Worked on watershed assessments. Referred unit of assessment, land use change- we narrow in on this
- 40 years in industry,
- Over 1700 projects
- Background in aggregate projects

Approach to Impact Assessment with Land Use Changes

- Establish a work plan
 - Look at resources available. Applicants collect data so get data from them.
- Background on area
 - Field work and desktop. Surface water - looking at features and which ones are being supported by the water part being affected
- Analysis
 - Look at impact without mitigation. In Aggregate you'd be removing lands and then look at influences from natural resources. These are multiple disciplinary activities. So, the team needs strength from resources. Always a requirement for monitoring. Typically, adaptive management process

- Field data collection: Multi-seasonal, rainfall/runoff (2 models)
 - Hydrology: groundwater integrated service. Looking at longer timeframes
 - Surface water: looked at instantaneously.
 - Flows: want to see what happens of absence and increase of this
- Management strategies

Important Considerations

- From that build a better understanding of surface water movement. Can contribute info to the ecology team and they talk about the resilience to change (including species at risk). Heightened required for management
- Hazard lands
 - Flooding
 - Erosion
- Management
 - Setback to resolve issues on site
 - Offsite - managing the pumping locations
- Other disciplines
 - Always working as part of a team

Open Dialogue

- DS: You described your role as a hydrologist in managing and mitigating application effects. Have you believed there are also applications where mitigation won't resolve the issues, after interdisciplinary work, application is not appropriate?
 - RS: You're always looking at the ways to design a site where it can proceed. Start with a concept that is then tested. If the intensity of a development is causing unmitigable, then look at rationing back the developments
 - If you have a site (ecology site) with species at risk that they preclude change, there needs to be a protected area.
 - If it is water reliant futures, you need to look at the future on how water can survive long term.
 - Typically, there is not a complete rejection. You need to make sure proper studies are being done. If all tests can be met, then it just becomes management. I have never seen rejection just lots of changes.
- DS: Concept of adaptive management change. You are probably aware of the audit report of aggregate extraction in Ontario. There were gaps, oversites. It seems that any AMP is going to require a reliable agency to monitor and enforce management plans. As of 2024, the MNRF will not be considered a reliable agency. How could one enforce and AMP in the environment we find ourselves in now in Ontario?
 - JN: Halton Region, they are a party to those agreements (some), Conservation Halton even more so. Satisfying local concerns - Halton has a staffer whose job is to monitor adaptive management plans.
 - JT: Will new ones be taken?
 - JN: Conservation Halton seems involved in that work Halton Region is upper tier without planning responsibility.
 - JT: I don't know what's happening transition wise. And it will continue to exist. We know they don't have responsibility
 - JT: I don't know the practicality of doing that even if a municipality wanted to do that. How far are you prepared to go?
 - Caledon doesn't want approvals after active extraction
- NM: I want to confirm - what you're talking about is a site-specific process for aggregate or land use change. Issues list that has to be dealt with at that time
 - We are looking for what we can do upstream of that but may not be in your scope
 - JN: Not entirely. Approach on processing is knowing policies that take place

- RS: When we get involved as teams, we are involved in application. It's rare where areas are not yet defined, and part of the process is where those areas will be. Look at it in peer review capacity. Dealing with it post-decision on where, that process is very top-down.
- NM: Involvement starts after the location has been specified - want to make that clear. Our thinking is getting ahead of that, it good to have expectations to be reasonable, for could be considered an aggregate application
 - RS: Yes. Aggregate- the most appropriate locations
 - JT: What we are trying to do is anticipate things that will come that we preclude or manage how they get assessed. Dealing with dewatering process- the issue IS had, when you have a site with a lot of water to be managed - capacity of streams (concerns)
 - RS: We will deal with that later on.

Chris' Presentation

Introduction

- Professional engineers - 35 years of hydrogeology
 - Expertise in interpretation of data and the analysis of groundwater flow

Questions

1.
 - Map shows recent results for the region of Durham.
 - Best estimate of travel time. 5,10,15 years determine vulnerability.
 - Cambridge gets it from bedrock, so vulnerability is very high
 - JT: Does it take into account capacity on quality.
 - R: Only high producing or low. It would affect land use.
2.
 - Estimate what the recharge rate is - whatever exceeds the regional average by 15%.
 - It starts with precipitation, the amount that goes to aquifers is 30.
 - JN: Anything over 4.5%
 - Source water updates in new development: we don't make assumptions of recharge rates. We identify those areas
 - Does not make it into groundwater
3.
 - High discharge areas.
 - R: They are always going to change something - how water will be released into the systems
4.
 - R: These two are most related to the ecological side as well.
5.
 - They can intercept a range of hydrological policies.
 - RS: These are used frequently in Urban development as well. They bring clean water to contact the ground to maintain water balance better. So, it has time to filter and infiltrate.
 - JT: Typical volume of water - what are we talking about in terms of what we need to do that dewatering.
 - RS: That's one of the first questions. Function of the drainage area is the circumference and there need to be a calculation to part of that area - typical amount of water that would run from that area- then build containment systems
 - Secondary area- for larger storms. Quarry is not concerned with a 100-year storm (designed to be flooded). Batch processing - capture everything first, and if there are contaminants, it's their first clarifier, they test it before it is discharged. There isn't a typical size.
 - JT: If it discharged, it could flow offsite, that then that will have impacts

- RS: Establish areas, especially ones that need to be protected. Then create a management plan. A water course has less than 50 hectares of drainage, it will not be regulated. Look at which are mitigation features (it needs clean water that reflects conditions- where treatment and pumping strategy comes in). Don't want to give them more or less water
- JT: They would have had to discharge water. A bigger issue to other people's land that is affected with water. Easements for owners of land - who makes the decision as to what is acceptable. How to manage
- RS: Hole in ground- it was connected to headwaters; those points are still accessible - goes to phasing and design of extraction.
- JT: but recurring
- RS: You have opportunity of time to manage the water. Need to engage ecology on thresholds (where you operate in between). LS: Lots of different ways of doing post remediation

6.

- Durham region
 - R: How long to get water to well
 - 25 years
- How it related to Caledon
 - North - wells
 - JT: you identified municipal wells.
 - Waterloo - they had to bring a whole new water supply. So how do you translate the vulnerability is discharge into potential protection
 - RS: Guelph- they have different growth (greenfield) examinations of water supply. Forward info on water supply (that's the lens)
 - JT: Is there much data on recharge?
 - R: A municipality, like Guelph, has a whole team that manages this and contributes to the management. They do well development and already have areas and wells identified and
 - JT: But do we have data on recharge?
- CN: Aggregate extraction within the area of highly vulnerable aquifer
 - R: to NM's question of screening. You can start to think of layering all the constraints.
- CN: It is process when we evaluate:
 - Identify resources
 - Understanding of existing conditions
 - Threats to groundwater resources
 - Design eliminated threats or something that will be fixed later on
 - Adaptive management plan
 - Not old – I am a big believer in them - somebody has to enforce them

Open Dialogue

- IS: Adaptive management plan (AMP). We need a shift of accountability to aggregate operators instead of working on the backs of taxpayers. Municipalities don't have the resources to do this. AM plans are an invention.
 - Aggregate industry loves AMP - everything will be fine because we get along. Well no - this is something from a hidden quarry decision "risk in everything".
 - Where are the baselines? AMPs are not properly used. We want certainty!
 - JT: Is it fair to say that you're approaching from MN "we'll find out when it happens"? It has to be reasonably certain. There is a 10-15% chance that something will happen, we need to have a backup plan. Something that is truly unknowable
 - RS: Your typical working within targets and thresholds, if you deviate from those, then that's a trigger for action - which is defined. And there is a monitoring and feedback mechanism. In an urban sense - future phases can be modified. Working with parameter that have been

- JT: Managing great lakes - obviously you'll adapt as you go on - so it only benefits aggregate operators. AMP was only designed for when you don't know what will be happening - but now it only relieves aggregate operators
- R: Parameters are in place.
- IS: I used an example of Winston Churchill. There is no receiving stream nearby and I wanted 80 ft deep. They wanted to slide this idea - to get in ground and then fight it in courts. We need absolute certainty on this.
- DS: Significant recharge areas - does Caledon have a map that shows it? If it doesn't exist - ought to be one created very soon and should be incorporated in new aggregate policies
- JT: There is a map in the ROP
- JN: I have noted 4 items for sure, but any final notes?
 - RS: This committee sent us great questions and only covered some. Would it be helpful to put down some notes and some responses and have a follow up?
 - JT: That would be very helpful
 - RS: Everyone has their own natural heritage system
 - IS: one quarry. They have massive drag lines. This massive equipment doesn't get walked over to a safe refueling site. 50% of the pit is a protection area. I think you need to establish extremely high standards for the handling of toxins and cleanliness of water. Aggressive industry - It should be a privilege to mine gravel - they need safety for water.