Supplemental Aggregate Resources Policy Study

Surface Water Considerations

Town of Caledon
April 30, 2024

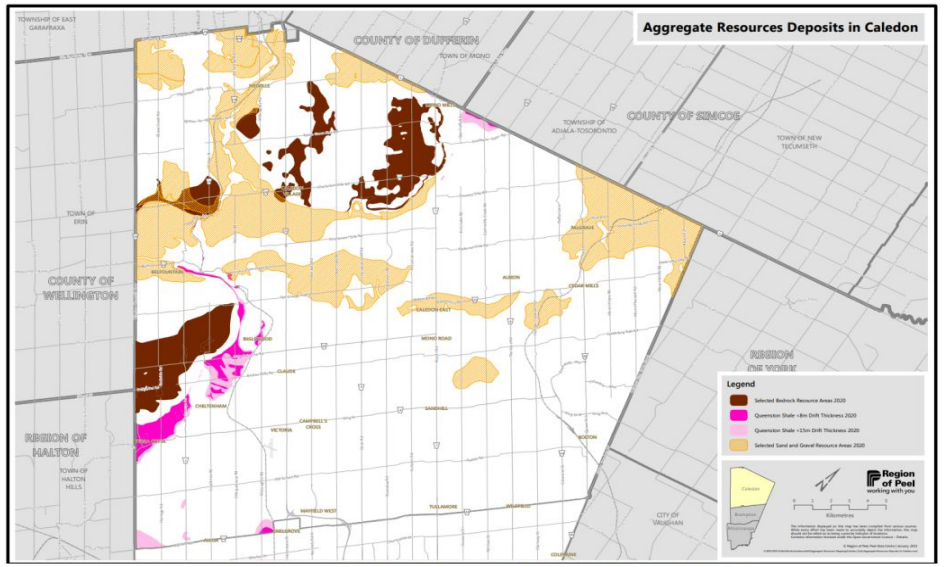


Figure 6: Aggregate Resources Deposits in the Town of Caledon

Presentation Overview – Surface Water

1. Background on Scheckenberger & Associates
2. Approach to impact assessments associated with land use changes
3. Important Considerations
4. Open Dialogue

1. Background on Scheckenberger & Associates

Ron Scheckenberger – 40 + years in industry

Senior Water Resources Engineer

Over 1700 projects

Master Drainage Plans	Stormwater Funding Assessments	Natural Channel Designs	Infrastructure Servicing Studies
Subwatershed Plans	Detailed Engineering Designs	Stormwater Management Plans	Development Charges
Watershed Plans	Implementation Studies	Preliminary Designs Studies	Source Protection Planning
Class Environmental Assessments	Expert Testimony	Climate Change Studies	Monitoring Studies and Research

Numerous subwatershed and watershed assessments (30+)

Considerable experience in Peel, recently:

- Mississauga Stormwater Master Plan, 2024
- Peel (Caledon) Settlement Area Boundary Expansion (SABE) Study – Scoped Watershed Study, Peel, 2023
    - Watershed Level of Service Report, CVC, Ongoing

1. Background on Scheckenberger & Associates

Numerous Quarry/Aggregate Projects:

Burlington – Halton Ceramic, Nelson

Niagara - Walkers

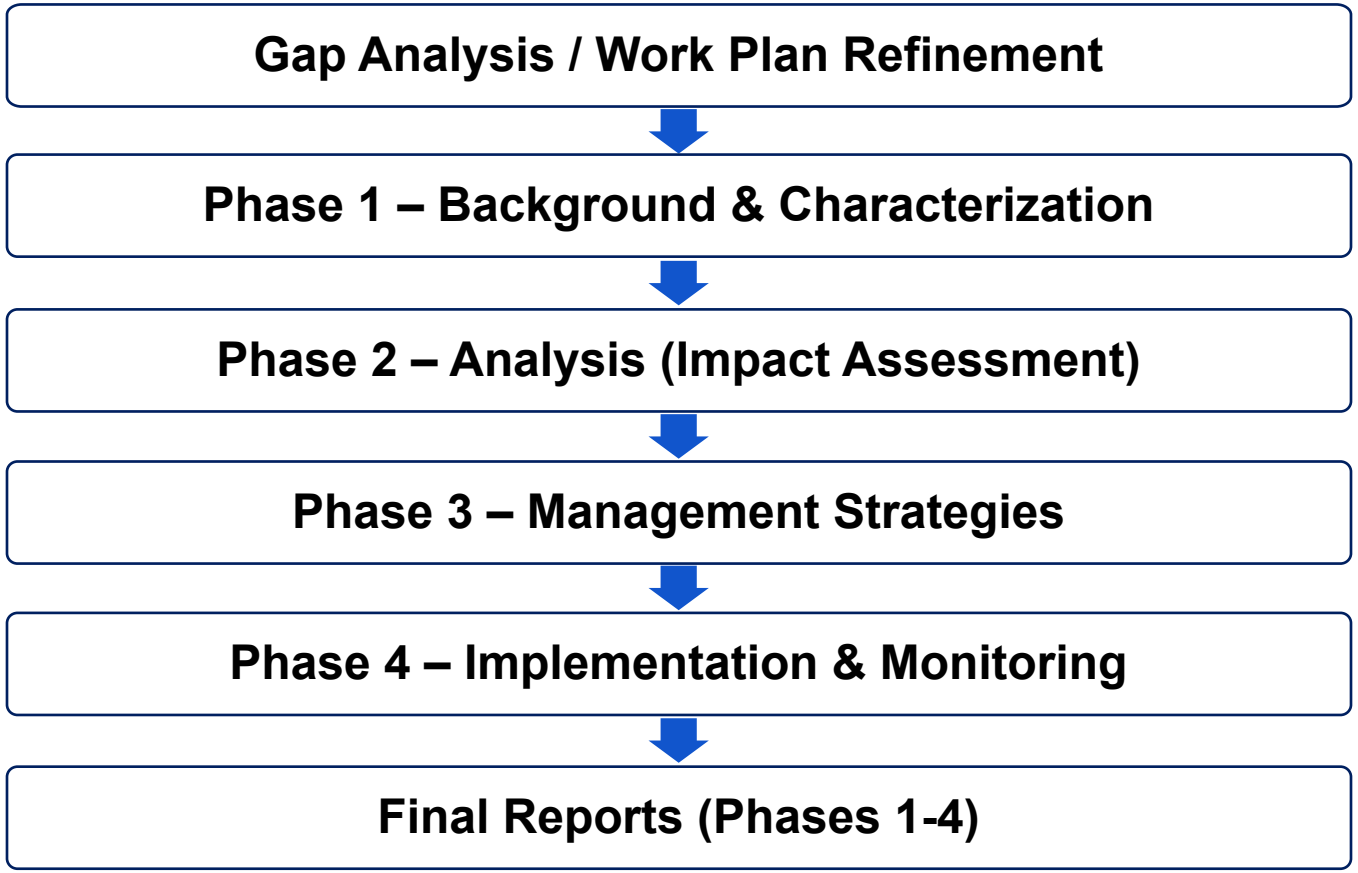
Milton – Dufferin

Role in each has varied including:

- establish current conditions and assess potential impacts
- develop approved management plans
- Peer reviews
- Agency and Stakeholder engagement

2. Approach to impact assessments associated with land use changes

Primary phases/steps:



2. Approach to impact assessments associated with land use changes

Scope of surface water work includes:

- Field data collection
    - Multi-seasonal
    - Rainfall/runoff
    - Water quality
- Modelling
    - Hydrology (flows)
    - Hydraulics (levels/velocities)
- Water management strategies
    - Mitigation plans
    - Long-term monitoring

3. Important Considerations

Extent and sensitivity of natural features particularly those reliant on water:

- Wetlands
- Watercourses/headwater drainage features
- woodlots

Regulated hazard lands:

- flooding
- erosion

Management of impacts:

- On-site – e.g. setbacks
- Off-site – e.g. pumping locations and rates and quality of discharge

Need for integrated strategies that consider other disciplines:

- Groundwater, aquatic and terrestrial resources, stream morphology

4. Open Dialogue

QUESTIONS?

4. Open Dialogue

1. How is dewatering done, in detail. Like, where are the sumps in relation to other operations, how does the water drain towards and collect in them, how are they moved as extraction proceeds, what happens to the water as it collects on the quarry floor, is there any pre-treatment, how is it discharged, at what rate, how does it affect natural stream flows, is there quality monitoring, is there a measuring system for quantity.

2. Highly Vulnerable Aquifers: What are the criteria for “highly vulnerable aquifers” under the ROP, or generally in hydrogeology? What are the implications of that designation? How do you protect HVA’s? Can you protect them while allowing aggregate extraction within them? How does that relate to down gradient users?

3. High Recharge Areas: what are the criteria, what are the implications, how do you protect the quality and quantity down gradient? Can it be done within an aggregate operation. How does that relate to down gradient users?

4. High Discharge Areas: criteria, implications, protection, down gradient impacts to quality and quantity and users?

4. Open Dialogue

5. Provincial Plans protect Key Hydrologic Features which includes all permanent and intermittent streams. To protect the function, quality and quantity of water do you need to protect the drainage area? is that the same as top of bank? Which should apply?

6. Seeps and springs: How can they be maintained down gradient with extraction, dewatering?

7. Do you have experience with infiltration trenches to help recharge the ground water during excavation. Has this concept of recharge infiltration trenches being used successfully elsewhere? Is it predictable?

8. Re dewatering discharge into golf course irrigation ponds which then flow into the credit river; How can this be acceptable? What happens when the ponds are full?

9. How do you address cumulative impacts in relation to ground and surface water and the existing and potential impacts of aggregate extraction.

4. Open Dialogue

10. Discharge to receiving streams:

- Capacity of receiving stream to accept increased flow without channel erosion
- Receiving stream distance from dewatering quarry and a suitable receiving location; adjacent or measured in kilometers?
- Will forms of easements or public road occupation agreements be required to accommodate dewatering mains to a receiving stream?
- Design of discharge location into a receiving stream.
- Temperature of discharge water into a cold water fishery?
- Blasting residue in discharge water
- Do PTTWs cover water quality for discharge waters?