Practical Considerations for Brownfield Redevelopment: Urban and Rural Brownfield Sites

insIGHT 2013 – Contaminated Sites in BC

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Outline

- Introductions
- Contaminated Site or Brownfield?
- **Case Studies**: Practical Considerations for Urban Brownfield Sites
- Brownfields…Rural vs. Urban
- **Case Studies**: Practical Considerations for Rural Brownfield Sites
- Q & A
Q: What is a contaminated site?

A contaminated site contains substances in or under the land in quantities or concentrations that exceed the applicable criteria or standards.

Q: What is a brownfield?

Abandoned, idle or underutilized commercial or industrial properties with known or suspected contamination, but where there is active potential for redevelopment.
Brownfields or Contaminated Site?

real estate with an environmental personality...
Advancing our Brownfields

- Community awareness
- More sophisticated marketplace
  - Risk Assessment and Management
  - Engineering/Institutional Controls
  - Purchase and Sale Agreements
  - Liability transfer and insurance products
- Supportive legislation (i.e. release permits)
- Funding and grant support
- Environmentally savvy developers
Case Studies: Practical Considerations for Urban Brownfield Sites

1. Interim Use – Community Gardens
2. High Density Residential Development
3. Brownfield Redevelopment – SODC
Interim Use: Challenges / barriers

- Understanding the site conditions & responsibilities / liabilities / restrictions
- Assessing risks (& opportunities) with limited resources
- Zoning & approved land uses
- Future site development
- Public perceptions (?)
- Funding (if a NPO or community group), capacity
Interim Use – Community Gardens

“plant a seed, grow a community”

As a part of the Young Professionals of Nanaimo Community initiatives, our aim is to develop gardens which will help to encourage people to eat local, healthy produce.

We have two confirmed locations - the first being in North Nanaimo at 5900 Island Hwy (the old Esso Gas Station next to the old Dot’s Cafe location) and the second in South Nanaimo at the corner of Needham and Irwin.

The YPN is already receiving the considerable support for the gardens from local businesses and residences.

http://www.ypngardens.com/

Terrace, BC – Brolly Square

Vancouver, BC – Davie Community Garden

Before

After
Interim use option — Community Gardens

- Safe – raised, separated garden beds
- Community Use – opportunity to grow food while supporting community projects
- Revitalize Area – raise value of adjacent properties
- Landowner Tax Savings – substantial property tax savings [Average brownfield property taxes in Vancouver: $60,000 ($40,000/year savings)]
SOLEfood Farm is a social enterprise that provides urban agriculture employment and training opportunities for Vancouver’s inner-city residents. Working alongside farmer/author Michael Ableman, community residents are trained and employed to install and manage small production farms on leased urban lots.

http://1sole.wordpress.com/
Shifting Growth offers a turnkey community garden project management service for landowners.

Temporary Community Gardens
- Mobile, raised garden beds
- Replicable logistical framework for installation, removal
- Garden beds relocated at discretion of landowner
Case Study: High Density Residential

- Former Service Station in Van
- Proposed development
  - Multi-level mixed use
  - Dedicated lands to the City
  - Basement parking
  - Excavate entire lot
- **Goal:** minimize risk – obtain CoC, permits, and succinct disclosures
- Design Considerations:
  - How to assess vapours?
  - Amended CoC
  - Isolated sumps
  - No gdw ingress
Case Study: High Density Residential

- Former Service Station in N. Van
- Proposed development
  - Multi-level mixed use
  - Basement parking
  - Excavate entire lot
- **Goal:** minimize market risk
  - obtain CoC prior to development
  - obtain permits
  - minimize future obligations
- Design Considerations:
  - Flexible CoC
  - Gdw / vapour barrier
  - No gdw ingress
  - Prevent recontamination
Case Study: High Density Residential
Case Study: SODC

Squamish River

Hwy 99 To Whistler

Squamish Town Center

Stawamus River

Stawamus Chief

Howe Sound
About SODC

- **SODC’s Vision:** to deliver a vibrant, innovative, sustainable, world-class “work-live-recreate” community showcasing the spirit, cultural heritage and values of the people of Squamish.

- SODC is financed independently through the Oceanfront land asset and the ongoing current and future development activity.

- **B.C. Brownfield Renewal Program:**
  - $230,000 (2010); $121,500 (2011)

- **GMF Brownfield Grants:**
  - $43,000 (2011); $102,800 (2011)
Vision: Brownfield Potential...
Site History and Operations

- 1965 – 1992: Chlor-alkali plant produced caustic soda, hydrochloric acid, and chlorine for the pulp and paper industry; at peak produced 150 tons chlorine per day
- Manufactured using mercury cell electrolysis
- Losses of mercury to the environment via plant exhaust, sludges, and wastewater effluent
- Southern 6 ha contaminated with mercury; HW levels in leachate disposal lagoon
- 1999 – MoE issued a remediation order
The Former Landscape (1980)
The Former Landscape (2000)

- Soil-holding and treatment area, and strip excavations in the Old Lagoon
Site Remediation

- 1999 – 2003: Site remediated by Nexen ($40M+)
- Soil stabilization technology to ensure Hg not leachable
- 24,000 T soil washed and backfilled
- 10,000 T soil was stabilized for offsite disposal
- 150,000 T soil and sludge disposed offsite
- 3 T of mercury metal was recovered and recycled
- Water treatment plant for groundwater remediation
- 2004: Minister of Environment presents Nexen with a *Special Environmental Award*
The Current Landscape (2005)

Howe Sound

Mamquam Blind Channel

Cattermole Slough
Transforming a Contaminated Site

“abandoned, idle or underutilized commercial or industrial properties with known or suspected historical contamination, but where there is active potential for redevelopment.”

- 1999 – 2004: Site Remediation by Nexen
- 2004: SODC created
- 2005: Nexen sold site As-is-Where-is to Squamish
- 2007: SODC engages development community
- 2008 – 2011: Business Plan
- 2009 – 2012: Environmental Programs
- 2011 – 2012: Sub Area Plan and Rezoning (ongoing)
- 2012: SODC engages development community
Brownfields...Rural vs. Urban
Rural vs. Urban

- Urban (Major City Core)
  - Greater Property Values
  - Greater Density
    - Underground Parking Garages
  - Easier Access to Disposal Facilities
  - Able to extract inherent value form the land to develop.
  - Usually have time pressures to complete remediation to extract the value.
Rural vs. Urban

- Rural (Non-Urban Core)
  - Lower Property Values
  - Lower Density
    - No need for Underground Parking Garages
    - If soil is removed need to replace
  - No Nearby Disposal Facilities
    - Large Transportation Costs
  - Not as much inherent value from the land.
  - Usually have time to complete a remediation.
Rural vs. Urban

- Other Main Difference is the People
- Urban Brownfields involve corporations and lawyers assigning blame.
  - Due to land values and time pressures.
- Rural Brownfields involve a community, people and a collective problem to solve.
  - Solve problems together.
Rural Brownfield Strategy

- Remedial Strategy
  - Use an in-situ technology that has a lower cost but takes more time to solve.

- Time
  - Take the time necessary to complete the project at a reasonable amount.

- Risk Assessment
  - Future Use and Neighbors are more stable
  - Figure out what really needs to be remediated.
  - Design the program on what will be protective.

- Social Issue
  - Brownfield Development is a Social Concern.
  - Utilize the land, put people to work
Experiences

- How is this put into practice?
- Three relevant rural projects from across Canada
Case Studies: Practical Considerations for Rural Brownfield Sites
1. St. John’s & Corner Brook Railyards
2. Prince George Gas Station
3. Chilliwack Commercial
St. John’s & Corner Brook Railyards

- Former Reid Newfoundland Railroad
- Everything in place, risk assessed
- Railway Museum, car park for shipping, commercial building and Shipyards
- Vacant fenced lot turned into productive land, hundreds of jobs
- Extensive hydrocarbon plumes
- Coal gasification
- Waste materials
Prince George Gas Station

- Former Gasoline Station on mall lands
- Deep plume
  - Remove core contamination
  - In-situ for remainder
  - Risk Assess Residual
- Redevelop
  - New Businesses
  - New Jobs
Chilliwack Commercial

- Commercial Building
  - Former Welder (metals on site)
  - Building on Piles (PAH on site)
  - Plume from former off-site gas station
  - Plume from former off-site garage
- Solve all problems
  - Risk Assessment
  - Everything naturally degrading
  - Leave in place and manage in place.
Questions? Thank You!

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