SUBSURFACE UTILITY NETWORK REGISTRATION AND THE PUBLICATION OF REAL RIGHTS: Towards Full 3D Cadastre

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Student, U.Laval, future land-surveyor
An interactive presentation

in 4 questions (YES or NO)

For YOU!
Question 1

- At home, do you know where underground utility networks are located?
- Is it needed?
- We argue YES
  - Many reasons....
  - Let’s talk regarding the registration and publication of real rights
Question 2

- In your Country, are underground networks registered?
  - Object itself or RRR (Rights, Respons., Restrictions)

- Is it needed?

- We argue YES

  all operations (building, sales, mortgaging, subdivision, etc)
  - To know the existence of underground networks!
  - To support the establishment and publication of RRR
  - To protect owner’s right
  - To secure real estate transaction
Jurisprudence (Quebec Civil code)

- Context: registration not mandatory

Summary (June 2015)

Bill S-233 Consultation

7 August 2015

Dear Underground Infrastructure Safety Advocate,

In the spring of 2015, Senator Grant Mitchell introduced Bill S-233, An Act Enacting the Underground Infrastructure Safety Enhancement Act and Making Consequential Amendments to Other Acts. The legislation would require that federally-regulated infrastructure be registered with a provincial notification centre, where one exists. For provinces without notification centres, the legislation would allow the federal government to encourage the creation of notification centres through funding grants.

- Estimated direct and indirect costs of CDN 95$ millions

* Stats extracted from infoExcavation
Question 3

- If underground networks are registered in your Country, is it integrated in the current cadastre system?
- Is it needed?
- We argue NOT necessary...
  - YES, Would be easier for registration process
  - BUT regarding mapping process...
    - 3D space, Very long geometry, not continues space, not or rarely visible
  - If not integrated, we need a linkage between cadastre and, at least, the path of the network
Question 4

- If underground networks are registered in your Country, what kind of features would be valuable?

1. Standards for the geometric and semantic description network itself / data acquisition and dissemination

2. Designation of impacted land at least a list of land parcels affected

3. Easements published in the land register
If underground networks are registered, what kind of features would be valuable?

4. Map of underground networks
   OR: at least 2D cadastre maps with the projection of the footprint of the underground networks

5. Tools that support multiple spatial analysis to determine the relationship with overlapping land parcels or other legal objects
CONCLUSION
A case study – Quebec jurisdiction

- Underground network
  - State resources and private distribution networks
  - Optionally stored in a Register complementary to the Land Register (called **FITNO**)
    - One land file
      - A serial number
      - The name of the holder (ownership of the property)
      - The name of regional administration
      - A link to official Real estate transactions (dead, mortgage, easement, sale, etc)
### Example of Real estate transaction

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<th>Numéro d’inscription</th>
<th>Nature de l’acte</th>
<th>Qualité</th>
<th>Nom des parties</th>
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</table>
Example of Real estate transaction

Specific issues

• No guideline for the description of the network (neither semantic or geometric)
• Land file opens only when real estate transaction occurs
• No cadastral map available
• Not able to know which land parcels is crossing
A prototype that enables mapping and querying underground network
Which cadastre units are overlapping the underground object?

### Result

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Future works

- A 5 years new Discovery Grant
  - Visualization and analysis of legal objects that are underground “not visible” and vertically superimposed.
  - Deployment of 2D and 3D modelling principles
- Looking for graduate students and internships
- Contact me: Jacynthe.pouliot@scg.ulaval.ca
Acknowledgements

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