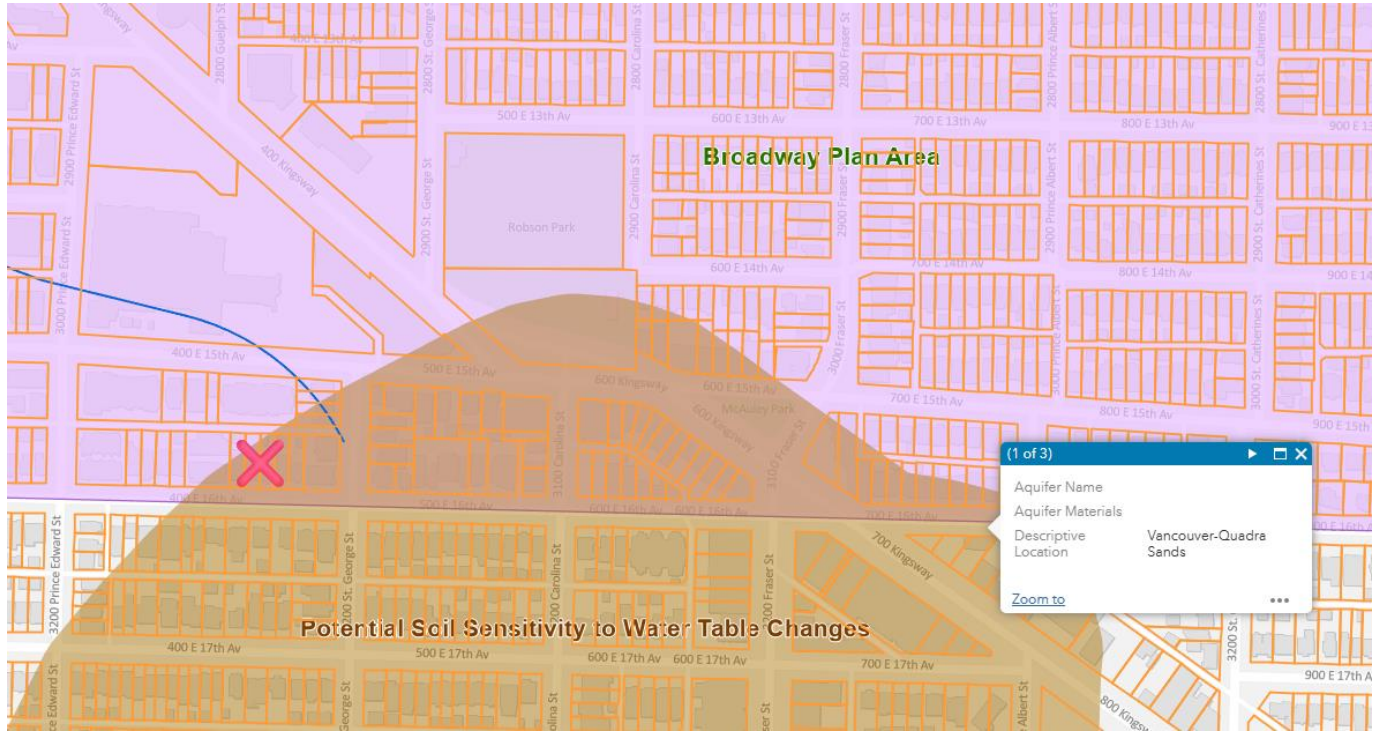
CD-1 Rezoning: 461–479 East 16th Avenue
Opposed: Unresolved Risk in a Mapped Peat Zone

Louise Pick
April 17, 2024 – City of Vancouver Public Hearing

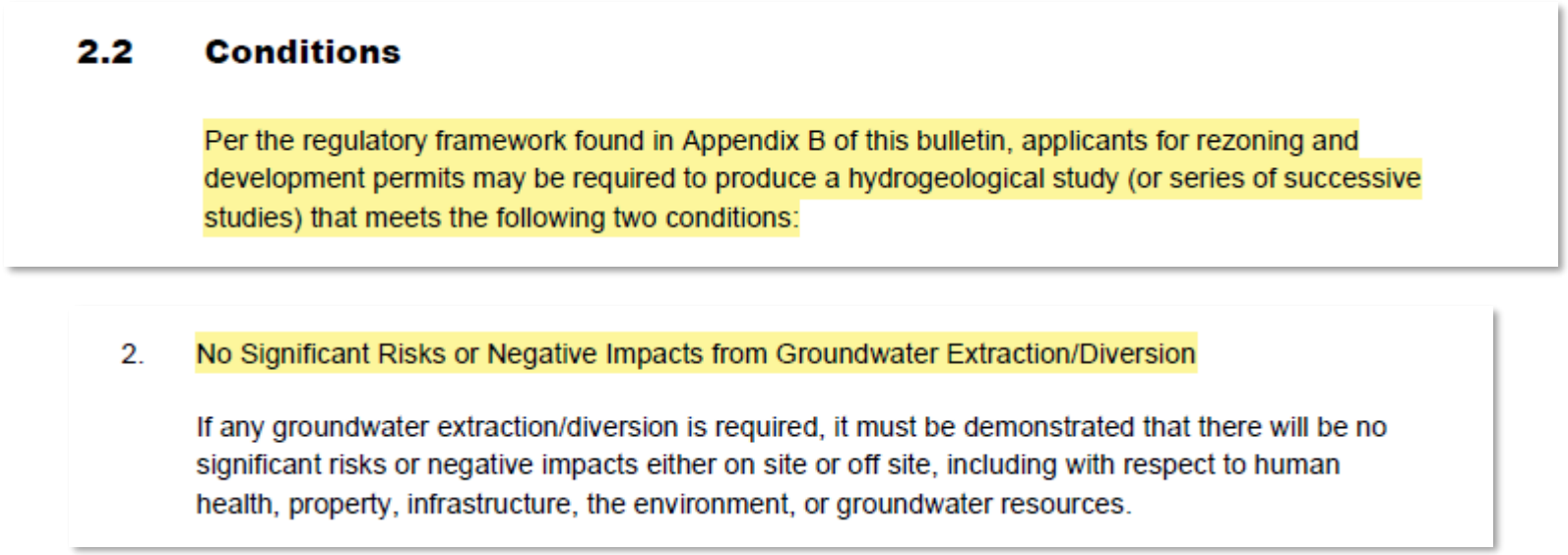
This Application Risks Dewatering Peat — And Doesn't Meet City Policy



- Site is in a mapped peat bog
- Excavation: 12+ metres for 4 underground levels.
- Preliminary hydrogeological study is not compliant.

City Policy: *The Groundwater Management Bulletin*

The City's own policy requires that off-site risk be fully ruled out before approval.



2.2 Conditions

Per the regulatory framework found in Appendix B of this bulletin, applicants for rezoning and development permits may be required to produce a hydrogeological study (or series of successive studies) that meets the following two conditions:

2. No Significant Risks or Negative Impacts from Groundwater Extraction/Diversion

If any groundwater extraction/diversion is required, it must be demonstrated that there will be no significant risks or negative impacts either on site or off site, including with respect to human health, property, infrastructure, the environment, or groundwater resources.

City of Vancouver. (2024). *Groundwater Management Bulletin* (Amended November 1, 2024). Planning, Urban Design and Sustainability Department. https://guidelines.vancouver.ca/G019.pdf

Independent Review by Senior Geotechnical Engineer

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April 14, 2025

City of Vancouver
453 West 12th Avenue
Vancouver, BC, V5Y 1V4

Attention: City Clerk and City Planning Department

ENGINEERING REVIEW AND ASSESSMENT
PRELIMINARY HYDROGEOLOGICAL INVESTIGATION REPORT
PROPOSED 461-479 EAST 16TH AVENUE DEVELOPMENT
VANCOUVER, BC

As authorized by several neighbouring property owners, Richard Butler, P. Eng., FEC has conducted a senior level engineering review of available information and an assessment of the

The Applicant's Preliminary Hydrogeological Assessment Fails to Meet the Groundwater Management Bulletin

Preliminary Hydrogeological Investigation Report: Proposed Residential Development 461-475 E 16th Avenue (GeoPacific Consultants, January 2024)

6.0 PRELIMINARY IMPACT ASSESSMENT

To satisfy the City of Vancouver's Groundwater Bulletin, GeoPacific conducted an impact assessment to demonstrate that there will be no significant impacts resulting from groundwater at the site:

I. Ground Subsidence

In some cases, dewatering can cause ground subsidence. This can have associated negative impacts on adjacent properties and city infrastructure. Peat was noted at the site, at both drilling locations, to depths of up to 1.5 m. Groundwater was not observed within the peat during drilling, though geotechnical lab testing results indicate that the moisture content of the peat ranges between 40.9% and 395.2%. This suggests that the peat is moderately to highly compressible under loading, though as discussed previously, the on-site peat will be removed as part of the proposed excavation.

The risk of subsidence is therefore from off-site peat deposits that may be impacted by dewatering at the site. The proposed passive dewatering methods at the site are unlikely to have any noticeable impact on off-site peat soils, though we recommend that some additional shallow groundwater wells are installed to determine whether a groundwater table is present within the peat and to determine whether the water level in the peat dries out during the summer months. If a seasonal variation in the peat water level can be proven, then this would be evidence that subsidence would not occur from any preferential draining of groundwater perched in these soils to the proposed excavation face.

Engineering Review and Assessment Preliminary Hydrogeological Investigation Report Proposed 461-465 E 16th Avenue (Richard Butler, P. Eng., FEC, April 2025)

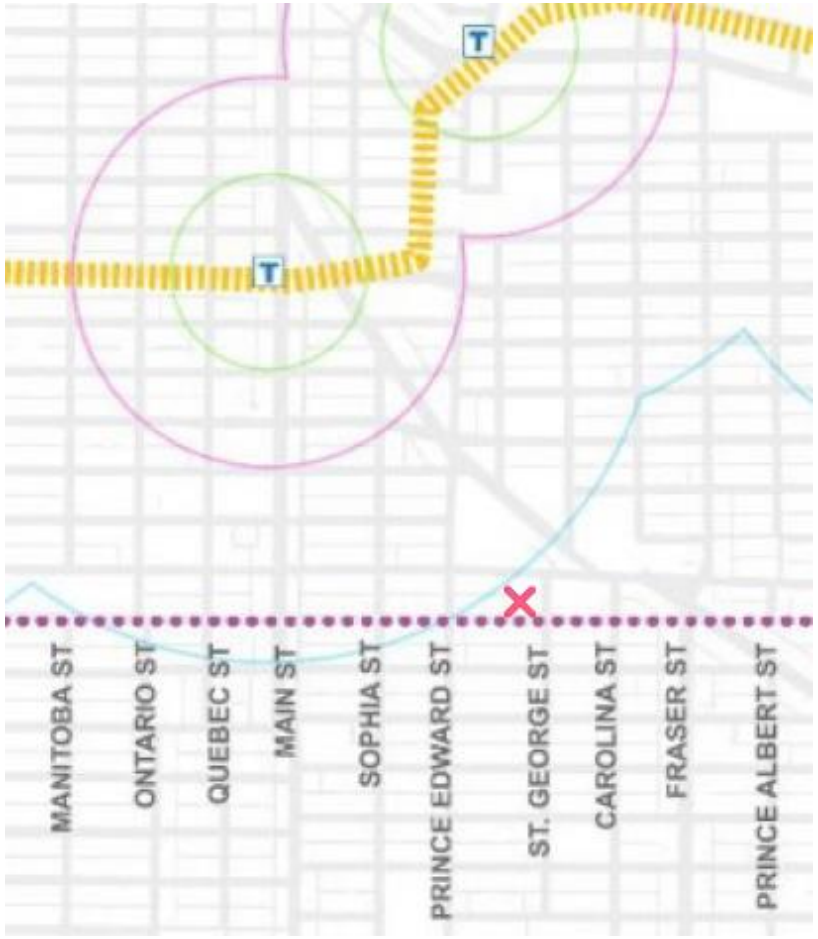
1.2 ENGINEERING ASESSMENT AND OPINION

It is my opinion that the existing borehole and hydrogeological information in the GeoPacific report is not sufficient or adequate to meet the criteria of the City Bulletin for a Preliminary Hydrogeological Study, and that additional hydrogeological investigation and analyses should be carried out as part of a Revised Preliminary Hydrogeological Study, in accordance with Item 2.3.3 of the Groundwater Management Bulletin. In my opinion and experience, the groundwater levels and seasonal variations identified within the siltstone bedrock could vary, potentially significantly, from the groundwater levels within the peat, clayey silt, and glacial till soils overlying the siltstone bedrock. These potential or likely differences in groundwater levels and seasonal variations were not identified or addressed in the GeoPacific report. Specifically, it is my opinion that the GeoPacific assessment is not sufficient to exclude the risk and impact of damages to offsite structures and other facilities that could occur due to groundwater extraction or lowering within the moderately to highly compressible peat and soft clayey soils underlying the properties adjacent to and potentially significant distance beyond the P4 Parkade development site.

What the City Requires vs. What Was Submitted

City Requirement (Groundwater Management Bulletin)	Applicant Submission (GeoPacific, Jan 2024)	Expert Analysis (Butler, June 2024 & April 2025)
#1 Historic streams within 25m	Dismissed: **claims no streams** mapped nearby	City mapping shows Brewery Creek near site; ignored
#2 Soil conditions and stratigraphy	Describes general stratigraphy from 2 boreholes (north only)	Site characterization incomplete; **key soil layers and variability not captured**
#3 Proximity to aquifers (including perched)	Acknowledges Quadra Aquifer is mapped, but dismissed due to not encountering it	**Dismissal inappropriate**; further drilling near south boundary required
#4 Assessment of groundwater-related risks (e.g. subsidence)	**Claims off-site peat not likely impacted**; **recommends more monitoring**	Risk of damage not excluded; **report fails to assess off-site impacts**
#5 Mitigation measures for identified risks	Proposes further study later; **no actual mitigation plan presented**	**No real mitigation strategies**; City requirement not met
#6 Hydraulic testing to assess drainage properties	Only measured moisture content; no hydraulic or grain size tests conducted	**Essential tests omitted**; can't assess drainage or risk of dewatering
#7 Section 2.2.2: No significant risks or negative impacts (on or off site)	**States off-site impact 'unlikely'**; admits more wells needed to determine actual risk	**Fails to meet City requirement; significant off-site risk not ruled out**

This Rezoning Application is Incomplete — Defer the Decision



- Outside of 800m Tier of Transit-Oriented Development
- On the edge of the Broadway Plan boundary
- No urgency to approve a project that may not be feasible
- A Revised Hydrogeological Study is required under City policy before this rezoning can responsibly proceed