# Lecture: Carbon Neutral Infrastructure / Biodiversity and Infrastructure (Healthy Environments)

Guest lecture for Environmental Engineering & Sustainability (ENVE 203) on carbon neutral infrastructure / biodiversity and infrastructure.

Location & Time: Forest Science Center Room 1611, 9:30 – 11:00 AM Tuesday Mar. 29th

Materials: Laptop, pre-readings, Timbits, chart paper?? Just slides? Need to check what is feasible and how an in-person class works post COVID.

Case-Studies/Class Activity

* 1-3 key concepts, make sure they are clear
* Make a hand-out for the students

2 plots to be developed. Teams will give high-level pitch for a “storm water management plan” that will include stormwater management and potential flooding (including from e.g. storm surge). Teams will either represent a “traditional” engineering approach, or a “low impact development” approach and will pitch it to the class & teaching team. For both areas, flooding is a major concern given recent events/projected increases in rainfall/etc. so the ultimate priority is not having expensive floods.

Handout – describes and guides students through activity. Tim to circulate, answering questions etc during work times.

Plot 1: Redevelopment of the City of Vancouver – National Yard + area into a mixed use commercial/residential neighbourhood.

1. Storm surge – latest projections show that large surges could threaten nearby buildings.
2. Subsurface Contamination entering aquifers or False Creek:
   * Parts of the area are “brown lands” - variety of surface and subsurface contamination (full extent will be the subject of future studies)
     + Including but not limited to:
       - PCBs, VOCs, fuel spills, solvents, heavy-metals, etc.
3. Combined sewers
   * Overflow to False Creek

Plot 2: Development of the Pagoda Ridge Golf Course into a suburb + small commercial area. Relatively high-density townhouses. Major concern is about impact on Coho salmon populations. Drainage is to 2 Coho salmon-bearing streams that feed into the Fraser River. Langley Township is worried about:

1. Contaminants (particularly “6PPD-Quinone”, which is known to be acutely toxic to Coho)
2. Runoff Volume Control Target – (give Ontario link? Ask Sylvie if this exists for BC)

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| Time | Activity | Materials Needed | Notes |
|  | Get Settled |  |  |
| ~20 minutes | Overview of topic & presentation of task | Slides |  |
| ~20-30 minutes | Divide class into 4 teams – 2 teams of old-school engineers, 2 new-school. Working on 2 proposed developments: 1 downtown redevelopment, 1 new suburb. | Handouts – Side 1 |  |
| ~0-5 minutes | Regroup – get some highlights, go into new groups |  |  |
| ~20-25 minutes | Teams pair off, comparing new-school and old-school, then come up with | Handouts – Side 2 |  |
| ~15 minutes | Get feedback from groups. What were the take-aways from each site? What aspects were most difficult for each type of technology? |  |  |