



November 27, 2023

By email: [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
Nanaimo, BC [REDACTED]

Dear [REDACTED]

Thank you and your team for meeting with me at 1650 Galerno Rd on November 20<sup>th</sup> to discuss WestUrban Developments' proposed subdivision development. I am writing to provide a summary of the regulated features we observed, the technical information and advice that I communicated on site, and to detail recommended next steps. We hope that the information will provide WestUrban Developments and its contracted environmental professionals with greater clarity and direction.

**Regulated features on site:**

- Wetland A – Large fluvial swamp adjacent to Simms Creek.
- Wetland B – Swamp that runs parallel to the old roadbed along the toe of a slope. Water was visible on the soil surface (e.g., photos 0237, 0258). The swamp receives surface water from Wetlands C, D, and E. It has two outlets from which it discharges water across the roadbed and down into Wetland A (photos 0243, 0266). Narrow incised channels have formed along the southern edge of the roadbed, where the land slopes down to Wetland A on the low terrace/floodplain (photos 0248 and 0261, video clip 0250). These channels indicate that surface water flows to Wetland A on a seasonal basis.
- Wetland C, D, E – Small swamps where groundwater breaks out to the surface along seepage slopes and in small depressions. Surface water pools in small depressions (e.g., photos 0229, 0273). Swamps B and C are connected, and B, D, and E are connected. When the water table and/or precipitation is high, water flows downhill from Wetlands C, D, and E to Wetland B (e.g., photos 0231, 0232, 0233). Wetland C additionally receives water from several small stormwater drainage pipes visible just below the homes along the north side of the parcel. These wetlands belong to hydrogeomorphic classes 'Palustrine System: Basins and Hollows' and 'Palustrine System: Seepage slopes', as defined in [Land Management Handbook 52 – Wetlands of BC](#).
- Wetland F – Small isolated swamp with no observed connection to Wetland A (photo 0275). As such, the Riparian Areas Protection Regulation (RAPR) does not apply to this feature.
- The wetlands we visited most closely resemble site association Ws52 Red alder – Skunk cabbage/Slough sedge swamps, though some areas more closely resemble Ws53 Western redcedar – Sword fern – Skunk cabbage. Slough sedge (*Carex obnupta*) predominates (photos 0254, 0269, 0275); however, the Skunk cabbage (*Lysichiton americanus*) had largely died back (photos 0233, 0239, 0242) and may therefore appear to be more common in the growing season.

### Next steps:

- Reexamine the northern boundary delineation of Wetland A. As shown in the accompanying maps and photos (0220, 0263, 0264) emailed with this memo, there are areas where LiDAR and markers in the field (visible surface water, saturated soils, and hydrophytic vegetation) indicate this boundary line should be pulled further north. RAPR requires that the *1 in 5 year* boundary be delineated. Also keep in mind that the previous year has been a severe drought year with well below average precipitation and high temperatures. Entering the fall, the water table would have been lower than normal. As the site is in a phase of groundwater recharge with fall precipitation, water levels are lower than at maximum.
- Delineate Wetlands B to F on the lot. I have loosely delineated these to focus field efforts. This coarse delineation is based on LiDAR hillshade imagery, Michelle Jones' delineation, and my photos and observations. The final delineation should be mapped at higher (~1 m or less) resolution. Again, water levels and the spatial extents of these features are not at their 1 in 5 year maximum so it is important to account for that in a defensible manner (e.g., based on a combination of LiDAR-derived elevation data and groundtruthing).
- Following delineation, ensure that the setbacks include measures to protect the Streamside Protection and Enhancement Areas (SPEAs), as required by the RAPR Technical Assessment Manual.
- Once the regulated features and their setbacks have been mapped, reevaluate development options. As I explained on site, please keep in mind that the province has an [Environmental Mitigation Policy](#). If impacts to wetlands cannot be fully avoided by changing the type of housing and/or housing layout, it would be necessary to apply for a *Water Sustainability Act* (WSA) Section 11 Change Approval. In accordance with the Environmental Mitigation Policy, regional staff would seek compensation in the form of wetland construction or enhancement elsewhere to ensure no net loss of aquatic ecosystems and their functions. A typical offsetting ratio is 3:1, but this can vary depending on the functional importance of the wetlands and the greater landscape context.

### Technical information and advice:

- Wetlands and springs are protected under the WSA. Wetland F, while not protected by RAPR, is still protected by the WSA.
- The purpose of the WSA is to protect water quality, water quantity, and aquatic ecosystems. Though riparian setbacks are not legally mandated for streams and wetlands protected under WSA, as they are with RAPR, this does not mean that they are not needed. As detailed in [Requirements and Best Management Practices for Making Changes In and About A Stream in British Columbia](#), removal of riparian forest impacts water quality, water quantity, and aquatic ecosystems and so practitioners are expected to preserve riparian forest. The province's guidance document [Develop with Care](#) details best practice for riparian setbacks in urban development. At a minimum, we advise that setbacks match what would be required by RAPR. Deviation from best practice requires strong science-based rationale.
- Wetlands are to be delineated in accordance with an accepted wetland delineation method. The most regionally appropriate method to follow on Vancouver Island is that of the [Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region](#). As per this manual, validation of vegetation indicators requires use of the USACE 2020 National Wetland Plant List for the Western Mountains, Valleys, and Coast Region, which can be downloaded [here](#). USACE's wetland delineation method (with its accompanying regional supplements to the core manual) is the gold standard in North America and has been so since the 1980s. As examples, New Brunswick and Nova Scotia each require that wetland delineation be done in accordance with the USACE Northcentral and Northeast Regional Supplement. Alberta requires use of a method adapted from the USACE and requires use of the USACE National Wetland Plant List.

- As explained on site, a wetland *does not* need to be flooded/ponded for two to four months of the growing season to be considered a wetland. On highly disturbed or problematic sites (as defined in the abovementioned USACE Regional Supplement), direct hydrologic monitoring may be needed to determine whether the feature is a wetland. In those cases, the technical standard requires 14 or more consecutive days of flooding or ponding, or a water table 30 cm (12 in) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10.
- Wetlands can occur on slopes. *Land Management Handbook 52 – Wetlands of BC* describes the hydrogeomorphic classes to which wetlands typically belong. Hydrogeomorphic classes describe the topographic position and site hydrology. ‘Palustrine wetlands: Seepage slopes’ are sloping sites with near-surface groundwater seepage. We see this in several places on this lot.
- Wetland classification is not the same as wetland delineation. Classification is the practice of identifying what site associations (i.e., climax state plant communities) occur in a wetland. Wetland delineation is the practice of using accepted indicators of wetland hydrology, vegetation, and soils to identify wetland boundaries. Strategic and Corvidae mentioned on site that they used *Land Management Handbook 52 – Wetlands of BC* to delineate the lower wetland. However, as I explained on site, this resource is not a wetland delineation manual. It is a guide to identification of wetland classes and site associations to help describe wetlands. Customarily, wetland scientists will delineate and classify wetlands.
- A wetland’s plant community may not exactly match those described in *Land Management Handbook 52 – Wetlands of BC*. That does not mean the feature is not a wetland. The handbook describes many of the province’s most common wetland site associations, but it is not exhaustive. Additionally, wetlands are dynamic systems, experiencing seasonal and long-term changes over time. Not only can a wetland’s class and site association(s) change over time with succession and natural processes (erosion, deposition, changes to hydrology), they can be altered by human activities that might change hydrology, introduce invasive species, and alter or impede successional processes etc.
- If a wetland was altered by human activities or was created by humans (deliberately or unintentionally) that does not mean it is not a wetland. What matters is whether the site is classified as wetland or non-wetland in accordance with a regionally appropriate accepted wetland delineation method. There are detailed procedures to follow for difficult wetland delineation situations with problematic vegetation, soils, or hydrology (as per the USACE Regional Supplement).

Regards,



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