

From: [Greg Wilson](#)
To: [Hannah Jenkins](#); [Dale Thompson](#); [Shawn Hill](#); [David Dowling](#); [Shawn Banks](#)
Subject: FW: Eastern Kings Wind Farm - Wetland Delineation
Date: Thursday, September 19, 2024 3:19:46 PM
Attachments: [image001.png](#)

Hi, Folks:

I went back to WSP and their original delineator and asked for further background into how he made his decisions in the field related to this issue.

This explanation may be of interest to you.

Cheers,
Gw

From: Blackadar, Janet <janet.blackadar@wsp.com>
Sent: Thursday, September 19, 2024 2:28 PM
To: Greg Wilson <GBWILSON@gov.pe.ca>
Subject: Eastern Kings Wetland

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Hi Greg,

As we discussed last week, I had a conversation with Garrett yesterday and he provided the below information.

The wetland area delineated in 2024 was of a type that is difficult to impossible to observe in the field based on vegetation alone and which would not provoke a test of soil or hydrology in the absence of specific information such as the shallow seasonal water table revealed by access road construction in the winter of 2022. The core wetland identified earlier (2019) was bounded using relatively coarse criteria as the change from wetland to upland in the eastern part is relatively sharp and dominated by visually obvious topographic changes (i.e., there's a steep slope at the edge). The original boundary was marked where the vegetation community became visually more likely to be upland based on species and there was no reason to test further for extremely subtle soil and hydrology indicators. Following the revelation of the existing shallow seasonal water table, there was justification to test more precisely and a much more detailed boundary criteria was developed to define the limits of the discovered wet area which was applied in 2024.

The standard wetland delineation methodology is a rapid field test based on visual estimation of indicators such as percent area dominance and soil colour. This works well for most wetlands in which changes between the wetland and adjacent upland are relatively large. However, where wetlands are located in very flat areas and near the shore, both the upland

and wetland vegetation communities can acquire a “moist wet” character represented by dominant species with the wetland indicator of “FAC”. The wetland indicators range from always wet Obligate (OBL) to always dry Upland (UP) with the midpoint Facultative (FAC) indicating those species that are as likely to occur in the wetland as in the upland. This produces a very subtle transition zone that could also be very broad. Using the coarser criteria associated with the eastern part of the wetland, the transition cut-off was originally much closer to the core open marsh. With the application of more subtle criteria, it was possible to extend the transition zone much further to accurately reflect the complex water table. It is noted that the 2024 delineation describes the landscape as having extensive microtopography which would potentially create small patches of upland in the wetland and vice-versa.

Referencing the field data sheets created for the new wetland delineation, it is evident that all three wetland criteria have been distinguished at the limit of detectability. For vegetation, the dominant species are FAC in both upland and wetland which does not help to delineate the boundary. Instead, the few species that are slightly more or less wet (FACW, FACUP) are used to swing the overall determination. It is noted that the wetland sheet had some errors which when corrected yield a Prevalence Index of 3.15 (a fail for wetland test) but the dominance test passes at 78% (because most plants are FAC). The point is that it’s an extremely subtle interpretation of indicator species between superficially identical upland and wetland forest communities. The soil throughout the region is relatively bright red (typical of most of PEI) and would generally fail a wetland colour test but appropriate professional judgement calls for the application of the “Red Parent Material” problem soil qualifier which explains why the dark red colours remain consistent with other hydric soil indicators. Redox features were observed but at only 2% area are a very subtle expression of mottling. The hydrology indicators are also relatively subtle including only saturation in the test pit and no intersection of the water table. The water-stained leaves are a strong indicator at the data sample site but is not consistent throughout the wetland area. The obvious shallow seasonal water table revealed by the access road construction is the most definitive indicator of wetland presence. Although it is possible to have temporary large flows of seasonal runoff that are not associated with wetland development, in this flat area it is conclusive evidence which drives the extended effort in the supplementary wetland delineation.

If we can provide anything further, please let me know.

Janet



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