



CBM Caledon Pit / Quarry - Additional Wetland Assessment (Woodland B)

Technical Memorandum

Date: October 2, 2025
Project: D251533CN.00
To: North-South Environmental

From: Amber Sabourin, Consor; Heather Melcher, Consor; Dan Eusebi, WSP; Shannon Ritchie, WSP

Re: CBM Caledon Pit / Quarry - Additional Wetland Assessment (Woodland B)

1.0 Introduction

WSP Canada Inc. (WSP) and Consor Engineers, LLC (Consor) were retained by CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada), to conduct technical studies for a Class A Licence (Pit and Quarry Below Water) application under the *Aggregate Resources Act*, as well as an Official Plan Amendment and Zoning By-law Amendment for the Town of Caledon.

The lands proposed to be licensed under the *Aggregate Resources Act* are referred to as the Site and are legally described as Part of Lots 15-17, Concession 4 WSCR and Part of Lot 16, Concession 3 WSCR (former Geographic Township of Caledon). The Study Area matches the expected groundwater zone of influence (ZOI) as defined in the Water Report Level 1/2 (Golder 2022a, revised 2023).

A Natural Environment Report (NER) was submitted in December 2022 (Golder 2022b, revised 2023). Peer review comments on the NER were received from North-South Environmental (NSE) on behalf of the Town of Caledon (the Town) in February 2025. As part of these comments, NSE recommended that an additional wetland assessment be conducted in accordance with the Ontario Wetland Evaluation System (OWES) for portions of Woodland B immediately northwest of the Site. Woodland B was previously mapped and classified by three Ecological Land Classification (ELC) units: Fresh-Moist Aspen - Poplar Deciduous Forest (FOD8-1), Poplar – Conifer Mineral Mixed Swamp (SWM3-2), and Dry-Fresh Sugar Maple – Beech Deciduous Forest (FOD5-2). NSE recommended that the ELC units FOD8-1 (Moist-Fresh Aspen – Poplar Deciduous Forest) be re-assessed.

According to OWES, a wetland is defined as “*lands that are seasonally or permanently flooded by shallow water, as well as lands where the water table is close to the surface; in either case, the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants*” (Ontario 2022). Based on this definition, a plant community is classified as a wetland if the following criteria are met:

- 1) 50% or more of the plant cover consists of wetland plants; and
- 2) The plant community has hydric soils (i.e., a moisture regime of 5 to 7)

This technical memorandum summarizes the methods and results of this additional wetland assessment.

2.0 Methods

OWES-certified ecologists (from WSP and Consor) conducted field investigations on May 30, 2025. The ecologists traversed the ELC units previously mapped as FOD8-1 within Woodland B to verify dominant plant species and soil characteristics. For the purposes of this assessment, wetland plants consisted of those species identified on Appendix 10 – Wetland Plant List of the OWES Southern Manual (Ontario 2022).

At each location where potential wetland plant species were identified, a soil core was sampled by hand using an Eijkelkamp soil auger to a depth of 100 cm or depth of refusal, whichever came first. The texture and moisture regime of each soil core was identified and evidence of mottles or gley recorded.

Where a wetland community was confirmed (i.e., the community had $\geq 50\%$ cover by wetland plants and hydric soils), the wetland boundary was delineated and recorded using a handheld GPS unit.

The ELC delineation and identification of upland plant communities were also refined.

It should be noted that OWES wetland boundary and ELC community delineations use different methods and therefore do not always result in the same boundaries. The assessors completing these additional surveys and evaluation are knowledgeable of these differences.

3.0 Results

Areas previously mapped as Fresh-Moist Poplar Deciduous Forest (FOD8-1) were surveyed and re-classified into five ELC units: Fresh-Moist White Cedar Forest (FOC4-1), Fresh-Moist Poplar Deciduous Forest (FOD8-1), Cultural Thicket (CUT), Poplar – Conifer Mineral Mixed Swamp (SWM3-2), and upland deciduous forest (FOD) (Figure 1). Figure 1 illustrates the refined ELC delineations.

The refined ELC communities are detailed in the following, subdivided into the South Block of woodland (i.e., south of the currently mapped Coulterville Wetland) and North Block of the woodland (i.e., north of the currently mapped Coulterville Wetland).

South Block of FOD8-1

The area of mapped Fresh-Moist Poplar Deciduous Forest (FOD8-1) at the south end of Woodland B was re-classified and subdivided into three smaller ELC communities including Fresh-Moist White Cedar Forest (FOC4-1), Poplar – Conifer Mineral Mixed Swamp (SWM3-2), and upland deciduous forest (FOD 8).

A small pocket of upland deciduous forest (FOD) characterized by sugar maple (*Acer saccharum*), white pine (*Pinus strobus*), green ash (*Fraxinus pennsylvanica*), honeysuckle (*Lonicera* sp.) and alternate-leaved dogwood (*Cornus alternifolia*) was identified on the riparian slopes along Tributary # 1 at the southern tip of Woodland B.

The north and west portion of the FOD8-1 was determined to be wetland and re-classified as part of the Poplar – Conifer Mineral Mixed Swamp (SWM3-2). Soils in these areas consisted of clay with an abundance of mottles. This is consistent with the findings in the Water Level 1/2 report (Golder 2022a, revised 2023). This resulted in an update to the boundary of the Coulterville Wetland Complex (Figure 1).

The south portion of the FOD8-1 was re-classified as Fresh-Moist White Cedar Forest (FOC4-1). The forest was dominated by white cedar with associates of green ash and a mixture of facultative upland species,

including sugar maple, American basswood (*Tilia americana*), Eastern hop-hornbeam (*Ostrya virginiana*), and choke cherry (*Prunus virginiana*). Ground cover, where present, consisted of upland species such as common dandelion (*Taraxacum officinale*), *Geum* sp., Virginia creeper (*Parthenocissus quinquefolia*), tall goldenrod (*Solidago altissima*) and orchard grass (*Dactylis glomerata*).

Soils in the White Cedar Forest (FOC4-1) were characterized by sandy clay loam to 60 cm, followed by silty sand with no mottles or gley observed, and a moisture regime of 2. These soils are consistent with the findings in the Water Report Level 1/2 report: *Table 5.9: Soil Coring Results - Northwest Investigation* of the (Golder 2022a, revised 2023). The perched water table was encountered at approximately 60 cm depth (refer to Perched Water Table section).

The White Cedar Forest (FOC4-1) occupied a gradual slope that extended from the edge of the agricultural field westward to the Poplar – Conifer Mineral Mixed Swamp (SWM3-2). Evidence of overland drainage from the adjacent agricultural fields through the White Cedar Forest (FOC4-1) to the swamp (SWM3-2) was observed.

North Block of FOD8-1

The area of mapped Fresh-Moist Poplar Deciduous Forest (FOD8-1) at the north end of Woodland B was re-classified and subdivided into three smaller ELC communities including Cultural Thicket (CUT), Poplar – Conifer Mineral Mixed Swamp (SWM3-2), and upland deciduous forest (FOD 8-1).

A Fresh-Moist Poplar Deciduous Forest (FOD8-1) community was confirmed at the north end of Woodland B. The community was dominated by a dense canopy of trembling aspen (*Populus tremuloides*), Eastern cottonwood (*Populus deltoides*), with a few sugar maple, white ash (*Fraxinus americana*) and hop-hornbeam. Understory was characterized by Virginia creeper, Tatarian honeysuckle (*Lonicera tatarica*), European buckthorn (*Rhamnus cathartica*), alternate-leaved dogwood and chokecherry. The ground cover was moderate and characterized by wild geranium (*Geranium maculatum*), woodland strawberry (*Fragaria vesca*), avens, common dandelion and three-flowered bedstraw (*Galium triflorum*).

Soils in the Poplar Deciduous Forest (FOD8-1) were characterized by sandy clay loam to 60 cm, followed by silty sand with no mottles or gley observed, and a moisture regime of 2. This is consistent with the findings in the Water Level 1/2 report (Golder 2022a, revised 2023).

The south portion of the previously mapped FOD8-1, adjacent to the agricultural field, was re-classified as a Cultural Thicket (CUT) dominated by white ash, Tatarian honeysuckle and apple (*Malus* sp.). This thicket may have been historically used as an orchard or as a cattle pasture.

The west portion of the previously mapped FOD8-1 was determined to be a wetland and re-classified as part of the Poplar – Conifer Mineral Mixed Swamp (SWM3-2).

Northwest Corner

The wetlands in the northwest portion of the Site including Cattail Mineral Shallow (MAS2-1), Willow Mineral Thicket Swamp (SWT2-2), and White Cedar Mineral Coniferous Swamp (SWC1-1) (Figure 1) were evaluated in the Technical Memorandum titled Unevaluated Wetland Assessment for the Proposed CBM Caledon Quarry in Caledon, Ontario (WSP 2024). Of note is that the boundaries of Wetland Units 3 and 4 changed as a result of the 2024 Wetland Assessment. The two wetland units were determined to be part of a single larger wetland feature classified as the Willow Mineral Thicket Swamp (SWT2-2). These wetland delineations were updated as part of the 2024 Wetland Assessment and boundaries provided to MNR.

These wetlands are located 125 metres from the Coulterville Wetland Complex. Additionally, these wetlands are separated from the Coulterville Wetland Complex by upland communities of Cultural Thicket (CUT) and Fresh-Moist White Cedar (FOC4-1) vegetation. Based on these factors, the wetlands in the northwest corner are not included in the revised boundary of the Coulterville Wetland Complex.

This portion of wetland adjacent to the proposed extraction area was not staked with agencies and these have since also been evaluated by WSP. These boundaries can be confirmed with the Town and Conservation Authority as needed. It is notable that these wetlands are located in the northwest corner of the proposed licence area at the edge of active agricultural fields and the boundary of the wetland is coincident with the cultivated farm field and easily delineated. A 30 m extraction setback will be assigned to these wetland boundaries on the Site Plan and Site Plan extraction limit updated accordingly. All wetlands have been assigned a 30 m extraction setback regardless of evaluation status (i.e., PSW or non-PSW).

CBM offers the opportunity to visit the small wetland portion not previously delineated with Regulators in the northwest corner of the proposed licence area that can be scheduled in 2025. As discussed above, the boundary of the wetland is coincident with the cultivated farm field and can be accurately delineated in the field during early fall.

Perched Water Table and Wetland Soils

Water Report Level 1/2 report (Golder 2022a, revised 2023) found that the Woodland B area in 2022 had perched water table conditions that became completely dry during the August to October 2022 period. Further pumping tests suggest Woodland B is a perched water system that is disconnected from the water table aquifer in the deeper overburden and bedrock. The water levels in Woodland B are thus not likely supported by the larger and deeper groundwater system of the Site, but by surface water contributions (Golder 2022a, revised 2023).

It is also noted that soil cores collected at 10 locations across this area in 2022 (to depths ranging from 0.48 to 1.83 m) indicated that the near surface soils, while variable in composition, are mainly comprised of fine-grained material. The material yielded low hydraulic conductivity estimates using the Hazen (1911) Method, which further suggests that the near surface soils in this area have a low permeability that can readily support perched water conditions.

Wetland

As discussed above, the boundary of the previously-mapped Poplar – Conifer Mineral Mixed Swamp (SWM3-2) unit was revised to extend further west, south and north within Woodland B (Figure 1). Soils in this community were characterized by clay with abundant mottling observed at the surface and a moisture regime of 6. This resulted in an update to the boundary of the Coulterville Wetland Complex (Figure 1).

No changes to the wetland boundary of the Poplar – Conifer Mineral Mixed Swamp (SWM3-2) along the agricultural field as previously staked with agencies (including Credit Valley Conservation, Town of Caledon and Region of Peel) were identified.

Ontario Wetland Evaluation System (OWES) Assessment Discussion

Based on the results of the wetland survey, the boundaries of the wetland communities within FOD8-1 have been refined, indicating that the Coulterville Wetland Complex extends further southwest within the woodland. The information available from the NER (Golder 2022b, revised 2023) is sufficient to complete

a preliminary OWES scorecard for this area. The preliminary assessment suggests that the wetland may qualify as a Provincially Significant Wetland (PSW), as the special features section would score above 200 points.

The primary factors contributing to the wetland's score exceeding 200 points include:

- The likely presence of newly listed Species at Risk (SAR) bat species, which are classified as endangered under Ontario's *Endangered Species Act* in 2025 (Eastern red bat [*Lasiurus borealis*], hoary bat [*Lasiurus cinereus*], and silver-haired bat [*Lasionycteris noctivagans*]).
- The likely presence of SAR bat species Eastern Small-footed Myotis (*Myotis leibii*) and Little Brown Myotis (*Myotis lucifugus*)
- The confirmed presence of SAR species Eastern Wood-pewee (*Contopus virens*), and Wood Thrush (*Hylocichla mustelina*), along with their habitat.
- The confirmed presence of the regionally rare Skunk Currant (*Ribes glandulosum*).
- The site's eco-region, 6E-7, has a high contribution score of 60 points for wetland rarity in this region.

The Coulterville Wetland Complex PSW is located off-Site and outside of the proposed extraction area.

The wetlands in the northwest corner of the Site including Cattail Mineral Shallow (MAS2-1), Willow Mineral Thicket Swamp (SWT2-2), and White Cedar Mineral Coniferous Swamp (SWC1-1) (Figure 1) were evaluated in the Technical Memorandum titled Unevaluated Wetland Assessment for the Proposed CBM Caledon Quarry in Caledon, Ontario (WSP 2024). These wetlands are located 125 m from the Coulterville Wetland Complex. Additionally, these wetlands are separated from the Coulterville Wetland Complex by upland communities of Cultural Thicket (CUT) and Fresh-Moist White Cedar (FOC4-1) vegetation. Based on these factors, the wetlands in the northwest corner are not included in the revised boundary of the Coulterville Wetland Complex and are not PSW.

4.0 Conclusions

Areas of Fresh-Moist Poplar Deciduous Forest (FOD8-1) previously mapped within Woodland B were re-assessed, and refinements of the ELC mapping were conducted and OWES wetland assessment completed.

At the north end of Woodland B, the previously mapped FOD8-1 community was re-classified and split into three units. The north portion was confirmed to be an upland FOD8-1 community. However, the east portion of the community along the agricultural field was recognized as a distinct ELC community and re-classified as a Cultural Thicket (CUT) and the west portion of the community was re-classified as Poplar – Conifer Mineral Mixed Swamp (SWM3-2).

At the south end of Woodland B, the previously mapped FOD8-1 community was re-classified and split into three units. The north and west portions of the community were re-classified as part of the Poplar – Conifer Mineral Mixed Swamp (SWM3-2). The majority of the south portion was re-classified as Fresh-Moist White Cedar Forest (FOC4-1). A small pocket at the extreme south tip of Woodland B was classified as an upland deciduous forest (FOD).

The additional areas of wetland identified within Woodland B which resulted in an update to the wetland boundary of Coulterville Wetland Complex. The assessment also concluded that the Coulterville Wetland Complex qualifies as a PSW, as the special features section will score above 200 points. The results of this assessment and revised wetland boundary will be submitted to the Ministry of Natural Resources (MNR) to update public mapping. The revised wetland boundary and significance classification should also be updated on the Site Plans.

The wetlands in the northwest corner of the Site, which includes Wetland Units 3 and 4, were evaluated in the Technical Memorandum titled Unevaluated Wetland Assessment for the Proposed CBM Caledon Quarry in Caledon, Ontario (WSP 2024). These wetlands are not part of the Coulterville Wetland Complex and are not PSW.

A small portion of the wetlands that abut the northwest corner of the proposed licence area may be delineated in the field with agencies in 2025 should they want to survey this area. The 30 m extraction setback will be updated on the Site Plans.

In summary, the understanding of water regime of the wetland parcels remains consistent with earlier reported water findings and the assessment of impacts as it relates to groundwater contributions remains the same. Revisions to the extent of the wetland feature are primarily within the interior portion of the woodland and would not influence the current setback recommendations for these features with the exception of the northwest corner of the Site where an extraction setback will be updated on the Site Plans. There are no negative impacts on the adjacent Coulterville Wetland Complex or other wetland parcels expected due to the proposed CBM Caledon Pit / Quarry.

5.0 Closure

Should you have any questions regarding this technical memorandum, please contact WSP or Consor.



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Attachments: Figure 1: Ecological Land Classification and Wetland Boundary for the 2025 Wetland Assessment of Woodland B

