



MEMO

515 Erbsville Road, Waterloo – Plantation Evaluation

1.0 SITE OVERVIEW

The subject property is currently used as a single rural residence, with one home and driveway at the east end. The west portion of the property is part of the *Forested Hills Environmentally Sensitive Policy Area (ESPA)* / *Core Environmental Feature (CEF)* and the central / east portion is a plantation.

1.1 Historic Land Use

A sequence of historical air photos covering 1930, 1946, 1955, 1990, 2006 and 2016 were reviewed (Attachment A), with the following observations:

- Land use in the local landscape changed from predominantly agricultural (with natural habitat blocks) from 1930 to urbanized starting in the 1970s
- The CEF woodland on the subject property and adjacent lands to the west has been present since at least 1930. The east limit of that feature on the subject property has not changed; current limits are the same as 1930
- Prior to early 1970s, the east portion of the subject property (i.e., current plantation / residence location) was predominantly cropland with very little tree cover. Cropland covered the adjacent parcels to the north and south.
- The plantation is evident from 1970s onward, showing a progression of maturation but very clear evidence of planted rows of trees
- The residence and associated pond / landscaping / lawn at the front (east end) of the property appears after 1970



1.2 Current Environmental Designations

Plantation

- City of Waterloo Official Plan (Schedule 'A4' Natural System)
 - None
- Region of Waterloo Official Plan (Map 4 Greenlands Network)
 - None

Deciduous Forest

- City of Waterloo Official Plan (Schedule 'A4' Natural System)
 - Core Natural Feature
- Region of Waterloo Official Plan (Map 4 Greenlands Network)
 - Core Environmental Feature

2.0 EXISTING CONDITIONS

2.1 Approach

WSP staff completed field surveys of the plantation and east portion of the existing CEF on June 14, 2021 and June 17, 2021, as input to the following:

- Vegetation community characterization and mapping, per the Ecological Land Classification for Southern Ontario (ELC) (Lee et al. 1998)
 - Vegetation community significance was evaluated using Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky 1996; NHIC website¹);
- Preparation of a working botanical inventory
 - Plant species status was evaluated using the Region of Waterloo Significant Species List: Vascular Plants Component, PC-99-028.1 (1999) for regional

¹ <https://www.ontario.ca/document/significant-wildlife-habitat-technical-guide/appendix-j-natural-heritage-resources-ontario-s-ranks-communities-site-regions-6-and-7>



significance; the NHIC website for provincial rarity ranks (i.e. S-Ranks); the Species at Risk in Ontario list (MNR updated regularly) for provincial status designations; and the Canadian Species At Risk list (Committee on the Status of Endangered Wildlife in Canada [COSEWIC]) for national status designations.

- Assessment of wildlife habitat and recording wildlife observations

2.2 Results

2.2.1 Vegetation & Flora

Two treed communities are present on the subject property: deciduous forest (within the existing CEF in the rear / west portion); and cultural plantation (within the front / east portion). Key characteristics are listed below. See Figure 1 for locations and Attachment B for representative site photographs.

Vegetation Unit 3: Mixed Plantation

- This is a mid-aged *Black Walnut – White Pine Mixed Plantation* (CUP2-1)
 - Trees have been planted in distinct rows and the community has been periodically managed over time, therefore is maintained by factors that are anthropogenic, rather than natural
 - The last known selective cut took place in 2019
- Overall botanical quality / ecological sensitivity is low
 - There is limited canopy tree diversity and some trees (particularly White Pine) are in poor health / dying
 - Understory regeneration is variable, but in most areas, these trees are young
 - Ground layer is characteristic of early successional communities
 - Exception: the small groundwater seepage area in the vicinity of the residence contains, which has greater relative ecological sensitivity than the surrounding plantation due to the presence of a regionally rare species (*Carex laevivaginata*) and the sensitivity of seepage areas, generally. This feature discharges to the marsh community near Fischer Hallman Road.
- Level of disturbance is high
 - This is an anthropogenic feature, with rows of planted trees evident in historic photos and on the ground

- Non-native species are widespread and abundant
- A network of recreational trails / off-road vehicle lanes is present across the entire plantation
- Selective logging has occurred periodically, and as recently as 2019
- Floristic composition:
 - Canopy: Dominated by planted Black Walnut (*Juglans nigra*) and less frequently, White Pine (*Pinus strobus*), with occasional to rare Sugar Maple (*Acer saccharum*) and Red Oak (*Quercus rubra*)
 - Subcanopy: Dominated by White Pine, with occasional Sugar Maple and Black Walnut, and infrequent White Ash (*Fraxinus americana*)
 - Understory: Variable density (ranging from sparse to moderately dense, averaging less than 25% cover), including: White Ash, Sugar Maple, and Common Buckthorn (*Rhamnus cathartica*)
 - Ground Layer: Characterized by a mix of early successional / meadow species and occasional woodland species, including: Orchard Grass (*Dactylis glomerata*), Garlic Mustard (*Alliaria petiolata*), Smooth Brome (*Bromus inermis*), White Avens (*Geum canadense*), Yellow Avens (*Geum aleppicum*), Pale Jewelweed (*Impatiens pallida*), Dame's Rocket (*Hesperis matronalis*), Currants (*Ribes* spp.), Wild Red Raspberry (*Rubus idaeus*), Black Raspberry (*Rubus occidentalis*), Wild Grape (*Vitis riparia*), Cleavers (*Galium aparine*), Enchanter's Nightshade (*Circaea lutetiana*), Goldenrods (*Solidago* sp.), Bladder Campion (*Silene vulgaris*), Blue Cohosh (*Caulophyllum thalictroides*), Wild Sarsaparilla (*Aralia nudicaulis*), Lady Fern (*Adiantum* spp.), and Annual Fleabane (*Erigeron annuus*)
- Plant Species of Conservation Concern:
 - One species recorded in the 'Y-shaped' seepage area: *Carex laevivaginata*. Black Walnut is considered significant in the Region only if demonstrably indigenous. These are planted trees.

Vegetation Unit 4: Deciduous Forest

- This is a mid-aged to mature *Dry-Fresh Sugar Maple – Beech Deciduous Forest* (FOD5-2)
- Overall botanical quality / ecological sensitivity is moderate-high
 - Diverse ground layer, characteristic of mature deciduous forest community (non-native and invasive species limited to edges and along logging tracks)
 - Rolling topography, with low-lying areas supporting facultative wetland species

- Level of disturbance is low – moderate
 - there are some recreational trails / off-road tracks, evidence of logging and some non-native / invasive species are present
- Floristic composition:
 - Canopy: Dominated by Sugar Maple, with occasional American Beech (*Fagus grandifolia*) Black Cherry (*Prunus serotina*) and Large-toothed Aspen (*Populus grandidenta*)
 - Subcanopy / Understory: Dominated by Sugar Maple, with White Ash, American Beech and Alternate-leaved Dogwood (*Cornus alternifolia*)
 - Ground Layer: predominantly woodland species, with some early successional / sun-tolerant species at edges and wetland associates in low-lying areas. Common species recorded in the east portion include: Wild Sarsaparilla, Wild Ginger (*Asarum canadense*), Canada Waterleaf (*Hydrophyllum canadense*), Pale Jewelweed (*Impatiens pallida*), Jack-in-the-pulpit (*Arisaema triphyllum*), Mayapple (*Podophyllum peltatum*), Christmas Fern (*Polystichum acrostichoides*), Sensitive Fern (*Onoclea sensibilis*), Enchanter's Nightshade (*Circaea lutetiana*), Hairy Solomon's Seal (*Polygonatum pubescens*), Jewelweed (*Impatiens capensis*), Sensitive Fern (*Onoclea sensibilis*), Evergreen Woodfern (*Dryopteris intermedia*), White Bear Sedge (*Carex albursina*), Plantain-leaved Sedge (*Carex plantaginea*), Rosy Sedge (*Carex rosea*), White Trillium (*Trillium grandiflorum*), Large-flowered Bellwort (*Uvularia grandiflora*), and False Solomon's Seal (*Maianthemum racemosum* ssp. *racemosum*)
- SCC: none recorded in the portion surveyed (reconnaissance level inventory only)

2.2.2 Wildlife

Plantation

- The plantation provides habitat for common, urban-tolerant and/or generalist wildlife
- No specialized, unique or locally limiting wildlife habitat is present (e.g., forest interior, amphibian breeding habitat)
- No known *Species at Risk* (SAR) habitat or *Significant Wildlife Habitat* (SWH) is present.
- The plantation does not provide connectivity / wildlife movement opportunities given the barriers to movement (i.e., Erbsville Road, urban development) and lack natural habitat to the north, south and east



- A suite of common bird species was recorded in the plantation (all are likely breeders):
 - American Goldfinch, American Robin, Downy Woodpecker, House Wren, Indigo Bunting, Mourning Dove, Northern Cardinal and Warbling Vireo.

CEF Forest

- The CEF forest provides habitat for generalist wildlife, as well as woodland-associated species, breeding amphibians (wetland/vernal ponds) and other sensitive taxa
- This is part of a much larger woodland which provides specialized, unique and locally limiting wildlife habitat, including likely SWH and SAR habitat
- This woodland provides connectivity / wildlife movement opportunities both internally (given its large size) and externally – to other natural areas to the north, south and west
- Common / urban-adapted species and additional woodland-associated species were recorded in the eastern edge² of the deciduous forest (all are likely breeders):
 - American Goldfinch, American Robin, Black-capped Chickadee, Blue Jay, Downy Woodpecker, Eastern Wood-pewee, Great-crested Flycatcher, Hairy Woodpecker, House Wren, Indigo Bunting, Northern Cardinal, Northern Flicker, Mourning Dove, Red-eyed Vireo, Song Sparrow, Warbling Vireo and White-breasted Nuthatch.

² Note this survey was only undertaken at the east edge; additional species are undoubtedly present further west



3.0 PLANTATION EVALUATION

3.1 Regional Official Plan

The plantation has been evaluated per the *Core Environmental Features* policies of the Regional Official Plan (2015), as presented in Attachment C.

Conclusion: The plantation does not meet criteria for designation as a *Core Environmental Feature*.

3.2 City Official Plan

The plantation has been evaluated per the *Core Natural Features* and *Supporting Natural Features* policies of the City of Waterloo Official Plan (2020), Section 8 Environment & Energy, as presented in Attachment C.

Conclusion: A small portion of the plantation (the seepage area) meets criteria as a *Supporting 'B' Natural Feature* ('other wetland').

4.0 RECOMMENDED CEF LIMIT

4.1 Assessment

Guidance for determining CEF limits in the Region of Waterloo Greenlands Network Implementation Guideline (GNIG; 2016) was reviewed. Several principles of relevance have been considered, as discussed below.

Section 3.2 states:

In defining most Core Environmental Feature or Supporting Environmental Feature boundaries, consideration must be given to land uses on both sides of the proposed boundary, as these affect the ecological functions of the environmental feature. Boundaries should reflect the most abrupt change in land use or habitat type, while recognizing that, in reality, the boundary will always be a continuum from an ecological perspective. (This may not apply to certain ESPAs or Environmentally Significant Valley Features defined primarily on earth science criteria).

An environmental feature needs to be evaluated as a continuous unit containing natural habitats of different types and varying quality. If there is variation around the periphery of an environmental feature (i.e. where a wetland or prairie remnant extends beyond the dripline of existing mapped limits of an ESPA or Significant Woodland), the extended area will normally be determined to represent the boundary.



Comment: There is a clear and abrupt change in habitat type from the deciduous forest to the mixed plantation. See Photo 6 in Attachment B.

Section 3.3 states:

In areas where geomorphology helps define an environmental feature, a perceptible break in slope or topographical contour may be interpreted to be the most appropriate boundary of the environmental feature.

Comment: There is a topographic change from the forest (lower, with micro-depressional areas) and the plantation (higher elevation). See Attachment D for the topographic survey, with approximately forest / plantation interface highlighted.

Section 4.7 states:

Plantations or Thickets: Plantations or thickets projecting out from Core Environmental Features or Supporting Environmental Features are generally excluded unless the plantation provides habitat for Regionally significant species or serves an important buffer function for sensitive natural habitat within the area. If the exclusion of a plantation would increase the perimeter-to-area ratio of the environmental feature (i.e., by creating a “bay”), it is included. Where they occur in the interior of Core Environmental Features or Supporting Environmental Features, plantations are always included.

Comment: The plantation clearly projects out from the CEF / ESPA woodland and there are no contiguous natural areas to the north, south or east (all developed / roads). No significant habitat attributes have been recorded in the plantation community; one regional rare species recorded in the seepage area. Though the west edge of the plantation would provide a buffer function to the adjacent forest, the entire plantation does not. Excluding the plantation would not increase perimeter to area ration of the CEF forest.

4.2 Recommended CEF Limit

Based on the assessment in Section 4.1, it is recommended that the CEF limit is at the dripline of the forest trees within the FOD5-2 vegetation community; this is as currently mapped in the ROP and City OP.



4.3 Additional Considerations

Based on discussion with Regional staff, WSP has considered a potential buffer zone adjacent to the deciduous forest, in consideration of the regeneration noted in the plantation. A minimum 10m setback is required per the ROP.

Based on WSP field work, there is no clear zone / limit where woodland regeneration is relatively greater / more strongly evident; rather, regeneration is occurring to varying degrees across the plantation.

Notwithstanding this, the portion of the plantation immediately adjacent to the deciduous forest has the greatest potential for regeneration and establishment of woodland flora based on that closer proximity.

There is an existing trail at the interface between the CEF forest and the plantation. That could potentially be used to connect trail links to the north and south of the property.



SIGNATURES

Prepared by

A handwritten signature in black ink, appearing to read 'Jeff Gross'.

June 28, 2021

Jeff Gross, MSc.,
Senior Ecologist

Date

Reviewed by

A handwritten signature in black ink, appearing to read 'Heather Drost'.

June 28, 2021

Heather Drost, BSc.,
Senior Ecologist

Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, **Activa Holdings Inc.**, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to **Activa Holdings Inc.** at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP Canada Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

The original of this digital file will be conserved by WSP Canada Inc. for a period of not less than 10 years. As the digital file transmitted to the intended recipient is no longer under the control of WSP Canada Inc. its integrity cannot be assured. As such, WSP Canada Inc. does not guarantee any modifications made to this digital file subsequent to its transmission to the intended recipient.



Attachment A – Historic Air Photos

1930



1946



1955



2006



2016



2019



Attachment B Representative Site Photos

Photo 1. East end of plantation, facing north



Photo 2. North-central plantation, facing south



Photo 3. North-central plantation, facing north



Photo 4. West end of plantation, facing north



Photo 5. Northwest plantation, facing west into deciduous forest



Photo 6. Gap / trail between plantation and forest



Photo 7. West edge of plantation, facing east



Photo 8. South edge of plantation / trail, facing west



Photo 9. Central plantation, facing north



Photo 10. East end of deciduous forest, facing west



Photo 11. East end of deciduous forest, facing west



Photo 12. East end of deciduous forest, facing northeast





Attachment C Evaluation of ROP and City OP Policies

ROP - Core Environmental Features

Per Policy 7.C.1 of the ROP, “Core Environmental Features are those environmental features identified as being provincially significant or regionally significant. These features are the most significant elements of the regional landscape in terms of maintaining, protecting and enhancing biodiversity and important ecological functions. Core Environmental Features are designated as shown on Map 4. The Core Environmental Features designation applies to lands that meet the criteria as:

- (a) Significant Habitat of Endangered or Threatened Species;
- (b) Provincially Significant Wetlands;
- (c) Environmentally Sensitive Policy Areas;
- (d) Significant Woodlands;
- (e) Environmentally Significant Valley Features; or
- (f) Significant Areas of Natural and Scientific Interest.”

Based on the field surveys undertaken by WSP in June 2021 and available secondary source information, the plantation does not meet CEF criteria, as follows:

- a) Significant Habitat of Endangered or Threatened Species
 - a. No End/Thr SAR were recorded during WSP field surveys
- b) Provincially Significant Wetlands
 - a. None is present. PSW and unevaluated wetland is present east of Fischer Hallman Road
- c) Environmentally Sensitive Policy Areas
 - a. None present; criteria not met per analysis below



Per Policy 7.C.5, *Environmentally Sensitive Policy Areas* identified by the Region are regionally significant natural areas that comprise:

(a) At least two of the following criteria:

i) comprise ecological communities deemed unusual, of outstanding quality or particularly representative regionally, provincially or nationally;

Evaluation: None present. This is a common cultural vegetation community type in the Region. It is not of outstanding quality, nor is it a representative example.

ii) contain critical habitats which are uncommon or remnants of once extensive habitats such as old growth forest, forest interior habitat, Carolinian forest, prairie-savanna, alvars, cliffs, bogs, fens, marl meadows, and cold water streams;

Evaluation: None present. This is a common cultural vegetation community type that contains none of these elements.

iii) provide a large area of natural habitat of at least 20 hectares which affords habitat to species intolerant of human intrusion; or

Evaluation: Not met. Approximately 3.2ha total area. Provides habitat for tolerant species given composition of the vegetation and context / surrounding land use.

iv) provide habitat for organisms native to the region recognized as regionally, provincially or nationally significant; or

Evaluation: None known from background sources and none recorded in the plantation community. One regionally rare species recorded in the seepage area.

(b) fulfill one of the criteria in Policy 7.C.5 (a) and any two of the following:

i) contain an unusual diversity of native life forms due to varied topography, microclimates, soils and/or drainage regimes;

Evaluation: Not met. One vegetation community type is present. Does not contain an unusual diversity of flora or fauna.

ii) perform a vital ecological function such as maintaining the hydrological balance over a widespread area by acting as a natural water storage, discharge or recharge area;

Evaluation: Not met for the plantation community. The seepage area may provide a localized discharge function which could be replicated.



iii) provide a linking system of relatively undisturbed forest or other natural habitat for the movement of wildlife over a considerable distance;

Evaluation: Not met. No linkages to the east, north or south

iv) serve as major migratory stop-over or significant over-wintering habitat; or

Evaluation: Not met. This type of habitat does not provide that function.

v) contain landforms deemed unusual or particularly representative at the regional scale.

Evaluation: Not met.

d) Significant Woodlands;

a. None present; criteria not met per analysis below

Per Policy 7.C.6, Significant Woodlands are areas that meet all of the following criteria:

(a) greater than four hectares in size, excluding any adjoining hedgerows;

Evaluation: Not met. Approximately 3.2ha total area

(b) consisting primarily of native species of trees; and

Evaluation: Provisionally met, noting that provenance of these planted trees is not known. May not be considered native to the Region.

(c) meets the criteria of a woodland in accordance with the provisions of the Regional Woodland Conservation By-law.

Evaluation: Met

The boundary of a Significant Woodland may be more precisely delineated, subject to Policy 7.A.6, to exclude plantations of primarily non-native species, small lobes and projections, and low quality wooded habitat on the periphery of the feature, the removal of which does not create an adverse environmental impact on the residual woodland.

Comment: The significant woodland in the west portion of the property (FOD5-2) is part of a much larger, contiguous feature characterized by high quality native deciduous forest. The limit of that forest east edge on the subject property has been consistent for more than 90 years and it does not include the plantation.



- e) Environmentally Significant Valley Features; or

Evaluation: Not met.

- f) Significant Areas of Natural and Scientific Interest.”

Evaluation: Not met. None present per Provincial mapping

City OP - Core Natural Features & Supporting Natural Features

Per the ROP analysis above, the plantation does not meet criteria for designation as a *Core Natural Feature* per Policy 8.2.4 of the City of Waterloo Official Plan (2020).

The plantation has been evaluated per the *Supporting Natural Features* policies of the City of Waterloo Official Plan (2020), Section 8 Environment & Energy.

Per Policy 8.2.5 of the Official Plan, Supporting Natural Features are those natural features not meeting the criteria for provincial or regional significance (i.e. designation as Landscape Level Systems or Core Natural Features) but which are locally significant. These features are the most significant elements of the local landscape in terms of protecting and enhancing ecological functions. Supporting Natural Features are identified by the City and are shown on Schedule ‘A4’ – Natural System. Supporting Natural Features are categorized as either Supporting “A” Natural Features or Supporting “B” Natural Features.

Supporting “A” Natural Features include:

- a) Locally Significant Wetlands, defined in the OP Glossary as:

Wetlands that are naturally-occurring and 0.5 hectares or greater in size or anthropogenic in origin and 2 hectares or greater in size, which are not classified as *Provincially Significant Wetlands*.

Evaluation: Note met. The small wetland seepage area is ~0.07 ha.

- b) Locally Significant Woodlands, defined in the OP Glossary as:

Woodlands that are 1 hectare or greater in size, generally excluding adjoining hedgerows and treed areas on small individual lots, that consist primarily of native tree species, which do not meet the criteria of a *Regionally Significant Woodland*. Cultivated fruit or nut orchards, actively managed plantations, or plantations established for the purpose of producing Christmas Trees or nursery stock are not included.

Evaluation: Not met. This is an actively managed plantation.



- c) Significant Wildlife Habitat; and,

Evaluation: None is known.

- d) Perennial Watercourses.

Evaluation: No defined watercourse is present.

Supporting “B” Natural Features include:

- (a) Intermittent Watercourses;

Evaluation: No defined watercourse is present.

- (b) Other Wetlands, defined in the OP Glossary as:

Wetlands that are naturally-occurring and less than 0.5 hectares in size or anthropogenic in origin and less than 2 hectares in size, which are not classified as *Provincially Significant Wetlands*.

Evaluation: Met for the seepage area, a small habitat inclusion within the plantation

- (c) Other Woodlands, defined in the OP Glossary as:

Woodlands that are greater than 0.5 hectares but less than 1 hectare in size, generally excluding adjoining hedgerows and treed areas on small individual lots, that consist primarily of native tree species. Cultivated fruit or nut orchards, actively managed plantations, or plantations established for the purpose of producing Christmas Trees or nursery stock are not included. Prior to *development* or *site alteration*, *Other Woodlands* must be evaluated to determine their significance and the need for protection.

Evaluation: Not met. This is an actively managed plantation.

- (d) Environmentally Significant Discharge Areas and Environmentally Significant Recharge Areas.

Evaluation: None is known



Attachment C Topographic Survey

