

October 02, 2017

Project #1901

Ms. Kelly Lagace
Paris Grand Estates Inc.
161 Rebecca Street
Hamilton, ON,
L8R 1B9

Dear Ms. Lagace:

**Re: Paris Grand Estates
Locke Property Addendum
2017 Revised Draft Plan**

1. Introduction

Natural Resource Solution Inc. (NRSI) was retained by Paris Grand Estates Inc. in September 2017 to complete a review of natural features within the recently acquired Locke Property (149 Paris Links Road) as part of the larger Environmental Impact Study (EIS) Addendum being completed for the revised 2017 Draft Plan for the Paris Grand Estates.

It is our understanding that the western portion of the Locke Property, which currently contains an existing residence with associated lawn, is to be re-developed for Medium Density Residential (2017 Draft Plan, Block 21). Brant County has requested a prompt assessment of this property in order to support the addition of this land within the Draft Plan area, and to identify any constraints to development within this Block.

The Locke Property is approximately 1.3ha in size and is located to the immediate south of Paris Links Road and to the north of the Grand River. It is bounded by the Paris Grand Country Club to the west and south, Paris Links Road to the north and Gilbert Creek and existing residential development to the east (**Map 1**). A portion of the Gilbert Creek Provincially Significant Wetland (PSW) is located on the subject property as well as other significant natural features which require consideration.

This report Addendum summarizes the findings of field surveys for this property, including the delineation of significant natural feature boundaries and recommended buffers.

2. Existing Conditions

NRSI biologists conducted Environmental Land Classification (ELC), wetland boundary and woodland dripline delineation on September 25, 2017. All incidental wildlife species encountered during these studies were also recorded.

Vegetation Communities

Vegetation communities were characterized within the subject property by NRSI biologists using the standard ELC System for southern Ontario (Lee *et al.* 1998). The western portion of the property is dominated by an existing residence with a long driveway adjacent to the woodland, as well as manicured lawn and landscape plantings.

The vegetation communities that were identified on the property during field work have been depicted on **Map 1** and are described below.

Dry-Fresh Deciduous Forest (FOD4)

This vegetation community is the dominant ecosite on the Locke Property.

It is found on the east side of the property and is present on both the east and west side of Gilbert Creek. The canopy is dense and contains abundant Sugar Maple (*Acer saccharum*), Basswood (*Tilia americana*) and White Ash (*Fraxinus americana*). The sub-canopy is also dense, and made up primarily of Sycamore Maple (*Acer pseudoplatanus*), Common Hackberry (*Celtis occidentalis*) and Black Walnut (*Juglans nigra*).

The understorey is dense and also dominated by Sycamore Maple and Chokecherry (*Prunus virginiana*), with the occasional Alternate-leaf Dogwood (*Cornus alternifolia*).

The ground cover is fairly dense and comprised of Garlic Mustard (*Alliaria petiolata*), Wild Strawberry (*Fragaria vesca*) and occasional Calico Aster (*Symphyotrichum lateriflorum*).

This community also includes 7 Butternut trees (*Juglans cinerea*), as shown on **Maps 1 and 2**. Butternut is listed as an Endangered species in Ontario and is protected under the *Endangered Species Act (2007)*. This species and necessary buffers are discussed in Section 3 below.

Inclusions:

Mineral Meadow Marsh (MAM2)

This inclusion is located along both the east and west sides of Gilbert Creek to the north end of the Locke Property. The understorey of this ecosite is dominated by Red Osier Dogwood (*Cornus sericea*). The groundcover is comprised mainly of *Mentha x piperita*, Spotted Jewelweed (*Impatiens capensis*) and Swamp Buttercup (*Ranunculus septentrionalis*).

Mineral Deciduous Swamp (SWD4)

This inclusion is found in the southeast corner of the Locke Property. It is bordered by the Dry-Fresh White Cedar Mixed Forest to the south and Gilbert Creek to the west. The canopy is dominated by Eastern White Cedar with occasional White Elm (*Ulmus americana*). The understorey is comprised mainly of abundant Spotted Jewelweed. A seepage area was identified to be associated with this ecosite.

Dry-Fresh White Cedar Mixed Forest (FOM4)

This vegetation community is present at the southwest corner of the Locke Property. Only a very small piece of the larger ecosite is located within its boundaries.

Dominant species in the canopy include Eastern White Cedar (*Thuja occidentalis*) and Maple sp. (*Acer sp.*), while the sub-canopy consists of Sycamore Maple, Manitoba Maple (*Acer negundo*), Eastern White Cedar and Sugar Maple. The understorey is also

dominated by Sycamore Maple, Black Cherry (*Prunus serotina*) and Sugar Maple. Groundcover includes Garlic Mustard, Wild Strawberry and Avens sp. (*Geum sp.*).

Gilbert Creek

The entire reach of Gilbert Creek, including the portion within the Locke Property, was assessed as part of the *EIS Addendum* (May 2016) completed by NRSI. Information from these surveys relevant to the Locke Property is provided below.

Gilbert Creek is located on the east side of the Locke Property and runs the length of the property from north to south. It is the principal drainage feature on the Locke Property. To the immediate north of the property, Gilbert Creek flows out of the culvert located beneath Paris Links Road.

Downstream from the culvert it runs onto the Locke Property, travelling parallel to Paris Links Road for 15m. It then turns south, entering the Mineral Meadow Marsh (MAM2) community. Within this section of the watercourse the channel gradient is moderate to high, forming a step-pool system. The substrate is very coarse, with cobbles and boulders. Where the creek bends south towards the Grand River, a deep pool has formed.

Approximately 30m downstream of the culvert, where Gilbert Creek flows out of the Meadow Marsh (MAM2) community, it enters the Dry-Fresh Deciduous Forest (FOD4). There is a concrete dam structure present at this location. The gap in the dam is approximately 1.5m wide and forms a constriction point in the watercourse.

Downstream of the concrete dam another deep pool has formed along with fallen trees and debris jams. The velocity of water within this section of Gilbert Creek is high, and has caused scouring to occur along the channel bed and banks, eroding and widening the banks. Downstream of the dam, the creek is approximately 3 to 4 times wider than it is upstream. Further south, beyond the fallen trees, the channel narrows to a similar width as upstream of the dam.

Downstream of the dam the channel becomes entrenched with the narrowing of the valley; this allows poor access to the floodplain. Along this section of the creek the channel gradient remains moderate to high, and has riffles and small pools throughout. The substrate is coarse with gravel, cobbles and small boulders; sand and silt are present in areas of lower stream velocity.

Towards the south end of the Locke Property, the creek substrate becomes dominated by silt and sand. Lateral and mid-channel bars are present along this section and the riffle-pool bed morphology is no longer present. The channel is shaded by Reed Canary Grass (*Phalaris arundinacea*), and exposed roots are present along both banks. From this point Gilbert Creek flows off the Locke Property and joins with the Grand River approximately 235m downstream.

Wetland Boundary

The boundaries of all wetland communities and inclusions were surveyed to sub-half metre accuracy within the Locke Property. Although **Map 2** shows the boundary of the entire wetland polygon, only the western edge was surveyed with GPS units; the remainders of each polygon were interpreted both on the ground and through air photo interpretation. The full extent of the wetland boundaries is shown on **Map 2**.

Woodland Boundary

The woodland boundary was surveyed to sub-half metre accuracy within the Locke Property. The dripline of the woodland is associated with the Dry-Fresh Deciduous Forest (FOD4) identified by NRSI biologists during ELC field work. Only the woodland to the west of Gilbert Creek was surveyed because it is the side associated with the proposed residential development. The boundaries of the woodland are delineated on **Map 2**.

The wetland and woodland boundaries were not confirmed by Grand River Conservation Authority (GRCA) staff, and will need to be prior to development. However, the boundaries of these natural features were generally well-defined and are not anticipated to change substantially.

Wildlife Observations

During ELC field work completed by NRSI biologists, any incidental wildlife observations were documented.

No Species at Risk (SAR) or Species of Conservation Concern (SCC) were identified during these studies.

A variety of woodland amphibian species were identified, including American Toad (*Anaxyrus americanus*), Gray Treefrog (*Hyla versicolor*), Wood Frog (*Lithobates sylvaticus*) and Red-backed Salamander (*Plethodon cinereus*).

Also documented were American Crow (*Corvus brachyrhynchos*), Downy Woodpecker (*Picoides pubescens*) and Eastern Gray Squirrel (*Sciurus carolinensis*). All of these species are common, with secure populations within Ontario and Brant County.

3. Buffers

Natural Feature Buffer

Buffers are applied to natural features with the purpose of protecting their form, function and the species inhabiting them during and after the development process. In many cases, such as the subject lands, buffers are anticipated to enhance site conditions over existing conditions.

The key natural features present on the Locke Property are the woodland, watercourse, and wetlands which are a part of the Gilbert Creek PSW Complex. The proposed natural feature buffer assists in guiding the proposed development within the subject property.

Given the disturbed nature of the Locke Property, a single natural feature buffer has been proposed, as opposed to individual buffers for each feature independently. It is the opinion of NRSI that in this situation it is most effective to apply a buffer to the natural system as a whole. Gilbert Creek and its associated PSW are situated in a defined valley that is well-contained and offers a substantial level of protection from the proposed development independent of the buffer.

The proposed buffer runs the length of the Locke Property from north to south. It varies between 2 and 15m in width from the woodland boundary, and 25 to 45m from the wetland boundary. The smooth form of the buffer provides effective ecological function and protection, and offers many opportunities for enhancement of the existing natural features. NRSI recommends that native plant species be installed within the buffer during the development process in order to strengthen the woodland edge.

The extents of the recommended natural feature buffer are shown on **Map 2**. Enhancement of this buffer will provide suitable habitat and feature protection for the PSW, watercourse and woodland, and will increase the ecological function above the existing condition.

Butternut

Although Butternut is designated as Endangered both provincially and nationally, this species may be removed where development is proposed as *per* Ontario Regulation 242/08.

The Butternut trees on the subject property will need to undergo a Butternut Health Assessment (BHA) and genetic hybridity test to determine whether they are considered non-retainable (Category 1), retainable (Category 2) or archivable (Category 3).

Category 1 trees can be removed following Ministry of Natural Resources and Forestry (MNRF) review of the BHA. Category 2 trees require the submission of a Notice of Butternut Impact to the MNRF, and associated compensation measures as outlined in O.Reg. 242/08, while Category 3 trees may require the completion of a C-Permit showing Overall Benefit.

While 50m is generally considered habitat for this species, the buffers shown on **Map 2** are not currently considered a constraint to development, as these trees may be removed depending on the results of the BHA and MNRF permitting process.

The Locke Property will be included within the *EIS Addendum* that will assess potential impacts as a result of the proposed development. Recommendations for necessary mitigation measures, recommendations for enhancement, restoration and monitoring to be undertaken will also be provided for the Locke Property within the *EIS Addendum*.

I trust this information is sufficient for your review. Should you have any questions, please contact the undersigned at 519-725-227 or nmiller@nrsi.on.ca.

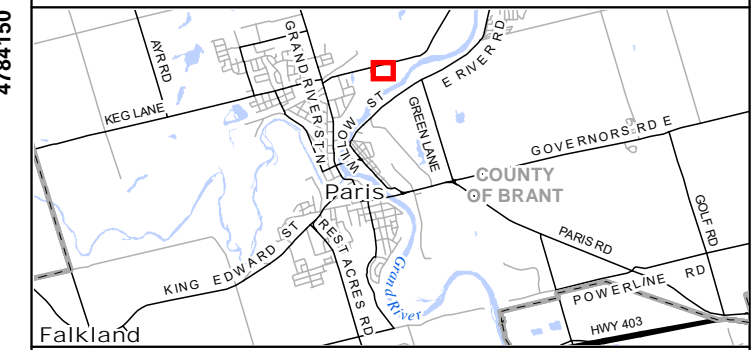
Sincerely,



Nathan Miller, M.Sc.
Natural Resource Solutions Inc.

Maps

Paris Grand Estates: Locke Property Vegetation Communities



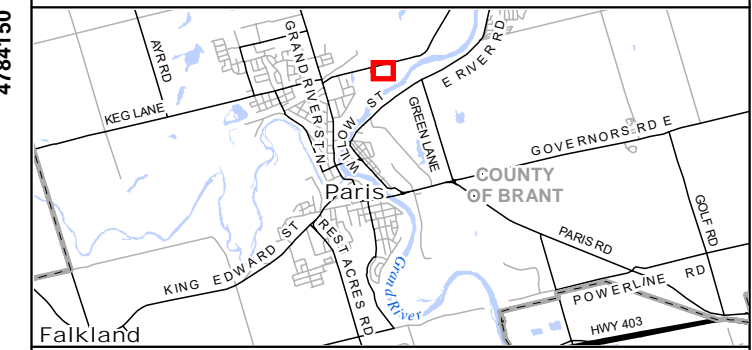
- Legend**
- Subject Property
 - Permanent Watercourse
 - Butternut Tree
 - (H3, H7) Coniferous Hedgegrow
 - (H6, H5, H2, H1) Deciduous Hedgerow
 - (H4, H8) Mixed Hedgrow
 - Ecological Land Classification (ELC)
- (CGL_1) Golf Course
(FOD4) Dry - Fresh Deciduous Forest Ecosite
(FOM4) Dry - Fresh White Cedar Mixed Forest Ecosite
(MAM2) Mineral Meadow Marsh Ecosite
(MAMM1-2) Cattail Graminoid Mineral Meadow Marsh Type
(MEGM4-1) Open Graminoid Meadow Type
(MEMM3) Dry - Fresh Mixed Meadow Ecosite
(SVDM4) Fresh - Moist Deciduous Savanna Ecosite
(SWD4) Mineral Deciduous Swamp Ecosite
(SWM1-1) White Cedar Mineral Mixed Swamp Ecosite
(SWMM1-1) White Cedar - Hardwood Mineral Mixed Swamp Type
(WODR1) Dry - Fresh Calcareous Bedrock Deciduous Woodland Ecosite

Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRFO Copyright: Queen's Printer Ontario. Imagery: First Base Solutions (2010)

Project: 1901 Date: September 26, 2017	NAD83 - UTM Zone 17 Size: 11x17" 1:1,000
---	--



Paris Grand Estates: Locke Property Development Constraints



- Legend**
- Subject Property
 - Woodland
 - Wetland
 - Proposed Development
 - Natural Feature Buffer
 - Permanent Watercourse
 - Butternut Tree
 - Butternut Tree Buffer (50m)



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRFO Copyright: Queen's Printer Ontario. Imagery: First Base Solutions (2010)

Project: 1901 Date: September 28, 2017	NAD83 - UTM Zone 17 Size: 11x17" 1:1,000
---	--

0 20 40 60 Metres

