

RIVERBEND SOUTH

EIS Dated July 25, 2014

Reviewers: S. Levin, Dr. B. Maddeford, Dr. C. Smart
November, 2014

MISSING ELEMENTS THAT INHIBITED OUR WORK

Page 6 of the EIS indicated that two vernal pools, were found southeast within the ESA edge. They are not shown in any of the Figures included with the documents. (They appear on UTRCA trail maps).

Page 6 also mentions that in December of 2012 and 2013, a total of 12 soil pits were dug. There are no data included in either document to assist EEPAC in its review. The soil pits are located all along one area, so are not representative of the site as a whole anyway....so there is not adequate data on permeability to determine runoff and groundwater recharge.

There is no overlay of the lotting pattern and the natural features with or without the ELC. There is a Development Plan in Figure 3, a drawn map of the lots included with the documentation, and there is a map with the ELCs and proposed Impact Assessment (Figure 4). But there is no lotting pattern overlay to illustrate the proposed tree retention, the loss of plantation trees, etc.

Labels and lines in Figure 4 do not always “jive” with the Legend.

PREAMBLE

It would have been helpful if the studies included the history of the area. The entire then existing woodland was included in City mapping in 1996, however, it disappeared in city mapping in 2004. Therefore it is incorrect to call the wooded patch found in the western portion of the study area as “isolated.” It is a remnant of a much larger woodland that if not clear cut, would have been regarded as significant.

This error eliminated protection for the woodland. Most of which was cut between April 2007 and April 2008 (City air photos). Additional cuttings were undertaken adjacent to the Hickory Significant Woodland between April 2012 and April 2013 (as per air photos), removing many of the poplars (as well as the two hedgerows).

THEME #1 - STORM WATER MANAGEMENT AND WATER BALANCE

Page 21 suggests there will be no reduction in groundwater infiltration. The tables that accompany the study suggest otherwise. Changing drainage into the ESA from outside its boundary line is a concern. If you walk along the plantation to the ESA junction, there are at least two areas that go to the ravines mentioned that slope east, downhill into the ESA. As well there are a few smaller and less defined areas that do likewise.

The modelling is intended to show that the small developed fragment along the ridge will not make any significant difference to the various catchment areas draining Warbler Woods. They are correct in terms of the impact at the outlets out of the woods. However, the real impact is not captured by this analysis. The point for analysis is where the water ENTERS the ESA not where it exits. At that point the runoff is entirely from developed land. The water balance will be very different, the flows more intense (and likely to cause erosion) and the water quality will be degraded. It is a bad idea to develop headwaters of ESAs, they are much better protected by the natural divide. Thus EEPAC advises to use the divide along the ridge to define the boundary for development.

The best protection is to preclude construction from the existing Warbler Woods *catchment*, so that the headwaters of the ESA are not substantially altered. This primarily affects the southeastern most sector. A water balance is undertaken to show that construction will have negligible impact on the ESA. But this mistakenly distributes the impact over the whole catchment whereas the effect of concern is on the head of catchment NOT the outlet from the ESA. Some additional erosion and sedimentation is likely in the ESA, especially during construction. This must be avoided.

There are no obvious streams draining the site and no evident tile drainage. The soil on the flats is very sandy. The implication is that runoff is low because infiltration is high. This is (contrary to the mapping) a groundwater recharge area, so that development may impact on groundwater balance.

On page 14 of the Terms of Reference, the proponent was required to provide a reasonable range of applicable stormwater management alternatives including Low Impact Stormwater Management solutions that would take into account the unique topographic features of this site. These could have included permeable pavements, soakaways, infiltration trenches, and bioswales) as described in the supplement to the Ministry of the Environment's 2003 Stormwater Management Planning and Design Manual entitled Low Impact Development Stormwater Management Planning and Design Guide. We did not find evidence of this work being done.

Recommendation 1: The ground water recharge for the entire site be reviewed through a field assessment by qualified independent reviewer.

Recommendation 2: No construction should take place in the existing Warbler Woods catchment, so that the headwaters of the ESA are not substantially impacted.

Recommendation 3: Use the divide along the ridge to define the boundary for development.

Recommendation 4: The flows from SWMF be monitored to ensure the calculated flows from the EA for Tributary C are not impacting on the cold water refuge.

THEME #2 – BUTTERFLY HABITAT AND NATIVE PLANTING OF BUFFERS

Polites themistocles (Tawney Skipper)

The key piece of information to point out, with any mitigation/restoration of Lepidopteran habitat, is the absolute necessity of the host plants for the caterpillar. All caterpillars are specialists to some degree according to *Butterflies of Canada* (an important source). For example, for this species, it states "*Panicum* spp., *Digitaria* spp., and *Poa* spp. Therefore the "butterfly plantings" need to incorporate **the native food plants of the caterpillars, i.e., native species of *Panicum*, *Digitaria*, and *Poa* (*Poa palustris*, *Poa glauca*, *Poa alsodes*)**. There are definitely native species of *Panicum*, e.g., *Panicum virgatum*, and according to USDA Plants Database, *Digitaria cognata* (but not *filiformis*) and definitely NOT *Poa pratensis*, as this is native to Europe. The butterfly plantings need to incorporate the preferred nectar plants of the adults as well, which, in *Butterflies of Canada*, it states members of the pea family (family Fabaceae).

A grassy area created to replace the meadow that will be taken out would be desirable, not just for the Tawny-edged Skipper but also for other meadow species.

EEPAC is concerned that the plantings done in Buffer Management Zone 3 may be for naught as the area appears to be bisected by the proposed corridor link and near to the continuation of the constructed pathway from the existing subdivision. There is nothing in the documents that discusses how trampling will be avoided.

Recommendation 5: The approved native plantings of buffers and butterfly habitat be monitored (see page 42 of the EIS) at the proponent's cost for 5 years from the date of the first housing unit being built. Sufficient security should be held back so a source of funding is available for any new plantings that may be required. The monitoring program must include clear outcome measures and details as to who conducts the monitoring. The City should do site visits to confirm outcomes. It should be a condition of approval (see EIS page 43).

Recommendation 6: The native plantings for the butterfly habitat must include the species list above for the regionally rare Tawney Skipper.

THEME #3 – ENHANCEMENT AREAS, BUFFER MANAGEMENT ZONES, BOUNDARY DELINEATION AND TREE RETENTION

Contrary to the first paragraph of page 10 of the Terms of Reference (see EIS), the consultants did not appear to identify core habitat and critical function zones as per Beacon. Neither does the EIS appear to have included the requirements of the Environmental Management Strategy and Plan as included on page 10 of the Terms of Reference (timing of each part of the plan, who is responsible, etc.).

Figure 5 and the drawing on Figure 6b do not match well. For example, 6b includes a Buffer Management Zone 4 which does not appear on Figure 5 (one has to extrapolate from Figure 6b). Figure 6b also shows a buffer of roughly 30 m which is larger than what is shown Figure 5 or in the text of the EIS. Figure 5 also causes other problems for interpretation in addition to numbering - it is unclear where the ESA boundary is near to Management Zones 2 and 3 (the “previously zoned” area).

It is unclear why the EIS recommends a smaller buffer to the Significant Woodland than to the ESA. The Hickory Woods Significant Woodland as it is, as stated in the EIS, a provincial rare to uncommon community. Greater buffering should be required noting that on the northeast edge, there is essentially none at all.

There is really not much point in having a pool (Management Zone 1) isolated from any connecting corridors. In addition, without any wetland corridors to allow wetland species (amphibians) to migrate as hydrological conditions evolve through seasonal cycles, the proposed pond is unlikely to succeed for amphibians. No critical function zone for such species is provided in the EIS (absolutely important for species whose life cycle includes water and land). There isn't a design water budget- so no one will have any idea what will happen post development. If this feature is agreed to by the City, there should first be a target wetland water balance, and an explanation of how the wetland would operate within those specifications.

Retaining a greater vegetated buffer or a trail management plan that avoids areas of steep slopes would be better suited for this part of the site.

The Natural Heritage Study asked for recommendations for the corridor (Management Zone 3 on Figure 6b, park block 97 in Appendix E?) between the ESA and the Significant Woodland which “... should be provided to maximize recreational and ecological functions.” It is unclear, what if any, ecological functions can be provided by a narrow corridor that is bisected by a local street. Page 13 (and 41) of the EIS says “The linkage will have ecological benefits; however, these will be limited by any requirements for a road crossing from the Warbler Woods Walk subdivision and the present subject lands.” Unfortunately, the EIS doesn't even try to explain what the ecological benefits will be.

RIVERBEND SOUTH SECONDARY PLAN AND NATURAL HERITAGE STUDY

As the “linkage” is merely an access point to the ESA, perhaps along the already used unmanaged trail (with observed bike ruts), EEPAC sees no reason to include the corridor in the proposed development, particularly without a managed trail system in place before building to control access to the ESA.

Over the past 2 years, as reported by an EEPAC member, at least 1/3 of the west side of the pines (all down sloping to the west) has been removed. EEPAC is concerned that most of the rest of the plantation will be removed and a number of trees will be left in back yards as buffer. According to Table 9 of Beacon (Ecological Buffer Guideline Review, December 2012), treed buffers provide a better screen for light, wind, noise as well as better erosion control. Coniferous buffers provide these functions all year round.

While it is difficult without an overlay of the lotting plan onto Figure 5 to determine the best location for the buffer, EEPAC is concerned that the EIS states that some trees recommended for retention are to be in back yards. No buffer or trees to be protected should be in back yards. There is no assurance that such trees will be retained, particularly without a protective by law in the city. Also, if the buffer were to be planted with invasive species (despite the best intentions of the educational component of the Homeowner Manual), the progression into the ESA will be faster than if the plantings had occurred outside the buffer.

EEPAC is puzzled by the section in the southeast portion of the subject site which seems to show an access through the buffer and into the ESA. Without a clear trail plan in place using the Trail Guidelines to identify management zones, it is premature to presuppose access points.

Recommendation 7: EEPAC does not support the proposed constructed wetland. The existing vernal pools should be protected. Their locations appear on the UTRCA web site (map for the Warbler Woods ESA).

Recommendation 8: EEPAC notes no clear ecological benefit is given in the EIS for including an open space corridor between the Significant Woodland and the ESA and recommends the requirement be dropped. In compensation for this loss, an additional buffer to the Hickory Woods and plantings in Buffer Management Zone 2 (Figure 5) be required instead.

Recommendation 9: The buffer for the Hickory Woods Significant Woodland should be 10 m wider as this is a rare to uncommon community in Ontario.

Recommendation 10: No trees for retention or buffer should be in backyards.

Recommendation 11: The ESA boundary be staked so that the boundary can be clearly recorded and agreed to by the City.

Recommendation 12: The City Ecologist and the consultant stake the buffer and then prepare an overlay of the lot pattern to exclude the buffer from backyards.

Recommendation 13: A requirement of development approval be the preparation of a Trail Management Plan by the proponent using the City Trail Standards.

RIVERBEND SOUTH SECONDARY PLAN AND NATURAL HERITAGE STUDY

Recommendation 14: As stated on page 40 of the EIS, a Buffer Management Plan be prepared as a condition of development approval. The plan must include warranty, frequency of monitoring, a hold back for a source of funds if work is not done as planned, as well as the scope of work required.

Recommendation 15: Enhancement measures must be outlined in the landscape plan. The Plan must include who does what, the expected outcomes and time lines, and a hold back of security to ensure that what is promised is carried out and functional after 5 years.

THEME #4 – TRAIL MANAGEMENT

Page 15 of the EIS makes reference to a multi-use trail system. However no details including possible routing are shown anywhere in the documentation. Google Earth clearly indicates the paved pathway already constructed to the property line. This has simply invited residents of the present sub-division to create their own unmanaged uses including a number of unmanaged trails leading into the ESA, including rutting from bicycles and two fire pits in the proposed buffer. Park Block 97 as shown in the Stantec site drawing will lead directly into the ESA at one of its steepest points. It does not connect to the existing managed trail system. This is irrational and should be reconsidered.

There appears to be an unmanaged trail that comes up the hill from the ESA at approximately at the midpoint of the subject property. This should not be considered an access point until a trail management plan, prior to development beginning, is prepared and adopted. Similar to other infrastructure, the trails need to be in place before commencing construction. It is unclear what plans are proposed for the trail system. A guess would be the existing paved “triangle” will be extended through the buffer area from north to south but it is unclear if it would develop at once or only in the same phases as the development. If the later, it is simply an open invitation to create even more informal trails into the ESA.

Recommendation 16: A holding provision or condition of approval be included so that a trail system, using the City’s Trail Standards, can be put in place for the entire subject property.

Recommendation 17: The proposed Park Block 97 be relocated so that it does not abut the ESA at a steep section.

Recommendation 18: Multi use pathways (called trails on page 15 of the EIS) must not be permitted in the ESA, particularly given the lack of, and no immediate plans for, a Conservation Master Plan or the use of the Trail Standards to define Management Zones for this ESA.

THEME #5 – CONSTRUCTION IMPACTS AND SITE ALTERATION

The EIS mentions in various places, starting with Page 15, that existing flow patterns will be maintained and that the proposed grading strategy will ensure lots and parks match into existing grades along the entirety of the ESA limit. As there is no detail provided

RIVERBEND SOUTH SECONDARY PLAN AND NATURAL HERITAGE STUDY

regarding the grading strategy, EEPAC is puzzled how grades will be matched. First of all, the matching should be along the buffer and NOT along the ESA limit. There are a number of elevation changes on this property and the grades could vary from lot to lot and vary from the edge of the buffer to the edge of the ESA limit. Grading should stay away from the ESA and grading only take place up to the limit of the buffer.

EEPAC also disputes the compensation for loss (Table 4-2, page 25 of the EIS). It excludes the 6 ha of plantation that is being removed. There should be compensation for loss as the plantation reduces edge effects on the ESA. EEPAC also disputes the assertion on page 25 that the net environmental benefits of the proposed plan and the EMP will be positive. After all, there will be no post development follow up to prove or disprove this point. Restricting the development envelope to areas outside the natural heritage features is merely following city policy. While buffer areas have been proposed, they are less than currently exist and mitigation measures while noble, do not appear to be any different than standard measures which have a mixed record and have not been studied to determine how effective they have been.

We also recommend no topsoil removal or soluble fertiliser application. Something along these lines should become standard for any adjacent to an ESA or other part of the Natural Heritage System. The development on Longworth Road is the type example of why this is needed. Large bare subsoil areas should not be left to erode. The spray seeding to vegetate eroded areas is actually ineffective (it does not restore permeability) and the high nitrate level in the spray is likely very harmful to downstream areas.

We remind the City that EEPAC suggested in its review of the Draft Terms of Reference that the that the MNR be consulted before any decisions relative to potential impacts on the confirmed earth science ANSI occur. (Natural Heritage Reference Manual, 2010)

Recommendation 19: Site grading must not occur within the buffer.

Recommendation 20: EEPAC supports the sediment control and other measures included in the EIS. Topsoil removal must not occur nor should soluble fertilizer be applied (directly or in mixtures) within the ESA catchment area. EEPAC also recommends implementation of the Clean Equipment Protocol at the site. <http://www.opwg.ca/index.php/equipment-protocol>.

Recommendation 21: EEPAC does not support the creation of a new wetland community. The site alteration is significant and the benefits doubtful.

Recommendation 22: A qualified ecologist be on site with the authority to stop work if there are any construction impacts (including the failure of silt fencing) on the natural heritage features and functions

Recommendation 23: As per the Natural Heritage Reference Manual, the MNR be consulted.

Recommendation 24: A detailed Construction Mitigation Plan (p. 42 of EIS) must be included in the contract drawings for site development. Measures included must be to the satisfaction of a City Ecologist.

THEME #6 – DIRECT AND INDIRECT IMPACTS FROM DEVELOPMENT

The EIS points out on page 21 that there may be increases in bird/building interactions. Many municipalities now produce “bird friendly” building guidelines. They should be reviewed as part of the urban design review of the high density buildings proposed for the site.

As noted in the EIS, encroachment is possible from nearby residents (it is already happening). There are few recommendations in the document to avoid or compensate for this. As noted earlier, informal trails have already been established and fire pits are located in the proposed buffer area. It is possible that such illegal uses will simply locate to the ESA after development proceeds. We disagree with the assertion on page 24 that anything special has been included in this plan to “substantially reduce the overall potential impacts resulting from the proposed plan.” By not including the entire plantation as a buffer, the houses are closer to the ESA. It is not clearly explained how a multi-use trail will provide mitigation. There are no published studies that we have found to confirm or reject this supposition.

While the EIS discusses tree plantings to replace the proposed loss of white pines, it is unclear how much of the loss in tree mass will be replaced nor how long it is estimated for the new tree mass to equal or exceed what will be lost.

To reduce the loss of habitat (and ecological function), keeping some pines and successional areas next to the ESA will still leave room for field sparrows, orioles, rose breasted grosbeaks, warbling vireo, flicker as well as forest birds such as tanagers, pewee, and wood thrush. An EEPAC member personally saw a pair of tanagers in the pine-ESA area in 2012.

Recommendation 25: Full cut off lighting be required for all outside lighting

Recommendation 26: A condition of draft approval be the inclusion of a review of bird friendly guidelines in the urban design approval process for the high rise buildings. Bonusing should be considered by the City if bird friendly designs are incorporated.

Recommendation 27: The boundary between the buffer/ESA be fenced with no gates and signed with the following: “Sensitive plants grow by the inch and die by the foot. Please do not enter this environmentally significant area here.”

RIVERBEND SOUTH SECONDARY PLAN AND NATURAL HERITAGE STUDY

Recommendation 28: Snow storage for the medium density block be designed so that melting salt contaminated snow does not drain to the Hickory Woods Significant Woodland.

Recommendation 29: All new residents (homeowners and renters) receive the required developer created Homeowner Manual. The Manual must include information on why fences have no gates and why the homeowner should not gate the fence; that any pools not drain to the buffer or the ESA or woodland, that lawn chemicals with nitrates are harmful to the natural environment; a species list of recommended and plants to avoid, and why lighting is limited or full cut off.

Recommendation 30: The developer agree to send the City's "Living with Natural Areas" booklet to all new owners abutting the buffers 3 to 6 months after new owners have moved in.

Recommendation 31: The City should require all street lighting to be full cut off lighting (not just shielded).

Recommendation 32: the dbh values of trees being removed be calculated and plantings be required in the buffer or ESA of appropriate species that replace the dbh lost within 10 years. Alternatively, the trees having a diameter of 10 centimetres or greater shall be replaced, on the same site, at rate of one replacement tree for every 10 centimetres of tree diameter that is removed. Replacement trees shall be no less than 5 cm in size. For example, four trees of at least 5 cm in diameter will be replaced for a 45 centimeter diameter tree that is removed.

THEME #7 – SPECIES AT RISK

- A. Wood Thrush is a species of special concern not Threatened as noted on page 10 of the EIS. We hope the sighting was reported to the Natural Heritage Information Centre as requested by the MNR.
- B. It is clear that crop changes resulted in disturbance of bobolink and meadowlark habitat. This is disappointing. It is also unclear why the bird surveys did not use the same stations each time the bird surveys were conducted.

THEME #8 - MISC ERRORS AND OMISSIONS

There appears to be a watercourse of some sort in the air photos on the east side of the site between a property line and the pines. This is not discussed in any report.

Page 7 of the EIS points out that the Thames River is 900 m away, but ignores the closer Tributary C, a cold water fishery, to which the SWM facility will drain.

It is appreciated that the Hickory Woods still exists even though much of its edge has been clear cut. The Dry-Fresh Hickory Deciduous Forest Type is Provincially Rare to

RIVERBEND SOUTH SECONDARY PLAN AND NATURAL HERITAGE
STUDY

Uncommon. Thankfully, the city's mapping error did not result in the loss of this feature.

Page 21, second bullet, should be changed to "Foraging and roosting habitat for species that use the interfact of field and edge habitat will be largely eliminated for ..."