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| | <p>Ecological Land Classification</p> <p>In the original 2003 EIS, the majority of KNL 7 & 8 were forested, with the exception of the former agricultural fields north and south of the rail line which consisted of open cultural meadow, and the aquatic environments noted below. These conditions were largely unchanged in 2013 and 2014 and the dominant ELC types found in KNL 7 & 8 fell into the following categories (Refer to DST (2015a) Figure 4a and 4b):</p> <ul style="list-style-type: none"> • Dry fresh white cedar coniferous forest; • Dry fresh white cedar deciduous mixed forest; • Fresh moist white cedar hardwood forest; • Red maple and ash deciduous swamp; • Dry fresh sugar maple ash deciduous forest; • Dry fresh oak hardwood deciduous forest; • Dry fresh sugar maple basswood oak beech deciduous forest; • Dry fresh sugar maple conifer mixed forest; • Marsh areas; and, • Cultural meadow. <p>DST conducted site visits in 2013 and 2014 to verify the ELC mapping from MEP (2003) and to document any changes to the site condition. All of the ELC communities described in MEP (2003) were still present within KNL 7 & 8.</p> <p>Wetlands</p> <p>The largest wetland in the vicinity of the KNL 7 & 8 developments is the Kizell Wetland Complex which includes the Kizell Cell immediately south of KNL 7, and the Beaver Cell located east of Goulbourn Forced Road, south of KNL 9 (Refer to Figure 3a). The Kizell Cell and the western half of the Beaver Cell were designated as a Provincially Significant Wetland (PSW) in</p> | |
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2011 after it had functioned as a stormwater management facility authorized by the Ministry of the Environment for more than a decade (Stow 2011). The open water area of the Beaver Cell is outside the boundary of the PSW and is a licensed stormwater facility. The Kizell Cell has a comparatively diverse vegetative community. Most of the Kizell Cell is shallow with hemi-marsh conditions predominating, although a deeper permanent open water patch exists immediately west of Goulbourn Forced Road. The Kizell Cell is dominated by broad-leaved cattail with reed-canary grass, purple loosestrife, and narrow leaved cattail commonly occurring throughout the wetland (Muncaster 2003). Slender willow and red-osier dogwood shrubs occur in low density throughout the wetland. Rice cut grass, joe-pye-weed, and spotted jewelweed are also common, as are green bur-reed and water-pepper (Brunton 1992). In contrast, the Beaver Cell's western side is dominated by a relatively dry and thick cattail marsh while the eastern half of the cell features a large stretch of open water.

Smaller wetland patches are also present at the western side of the rail line, along the course of Shirley's Brook (discussed below). Larger wet areas along the west side of Shirley's Brook appear to have been created by the realignment of Shirley's Brook within KNL 8 and associated grading changes which occurred during the construction of the Terry Fox Drive extension. Wet areas at the west side of Shirley's Brook primarily consist of borderline stagnant conditions, with shallow seasonally flooded pools, and swamp. Vegetation in these areas consists of small patches of emergent aquatic vegetation, such as cattails, and willow/ash swamps in

seasonally wet locations.

A string of vernal pools within the forest are known to exist at the northeast corner of KNL 8 and several depressions/pools also exist along the southern portion of the First Line Road Allowance (Refer to Figure 3a). These strings of pools are predominantly shallow features with patches of aquatic vegetation and some of the smaller pools are seasonally dry. Both strings of pools are known to be significant habitat features for Blanding's Turtle.

Shirley's Brook

Shirley's Brook runs through the KNL development lands, flowing southwest under the arc of Terry Fox Drive (through KNL 8) before crossing the rail line and entering KNL 7. Two tributaries of Shirley's Brook converge at the west side of KNL 7 and flow eastwards through the cultural meadow towards Goulbourn Forced Road (Refer to Figure 3a). The main body of Shirley's Brook then runs north of KNL 9 (through the Trillium Woods) and onwards towards its outlet at Shirley's Bay (Ottawa River). It should be noted that the aquatic habitat associated with Shirley's Brook west of Goulbourn Forced Road (west of KNL 9) has been highly degraded historically through channelization, loss of natural features within the riparian corridor, and adjacent agricultural activity (Bowfin 2011). While Shirley's Brook within KNL 7 is considered fish habitat, for the majority of its course through KNL 7, Shirley's Brook can be characterized as a highly degraded and partially channelized farm drain (MEP 2003; Bowfin 2011). To minimize additional impacts to the watercourse and to improve the aquatic habitat over existing conditions, a plan is in place to realign Shirley's Brook using natural channel design

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| | <p>and to add new wetland/deep pool features along the watercourse to act as compensation habitat for Blanding's Turtle and enhance fish habitat. This is discussed in greater detail in later sections.</p> | |
| <p>Description of habitat features on site. Note any key habitat features (e.g., nests, hibernacula, calving areas, dens, roost trees, etc) observed at or near the activity location including the geographic coordinates of the observations. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.</p> | <p>The KNL developments have Category 1, 2 and 3 habitat for Blanding's Turtles. Figure 3a shows these habitat features prior to development. Blanding's Turtle have been shown to be present within the KNL 7 & 8 lands as well as many surrounding natural areas. As shown in Figure 3a, the Kizell Cell is identified as a Category 1 habitat feature, providing key habitat functions including an overwintering site and core wetland habitat. A large nesting area is known to exist in the central portion of KNL 8, which is also a Category 1 feature that supports breeding (Figure 3b). The string of vernal pools at the northeast side of KNL 8 are also shown as Category 1 features, primarily due to overwintering at these locations (these are referred to as the 'hibernacula'). The remaining wetland habitats within and adjacent to KNL 7 & 8 are shown as Category 2 wetland features, providing movement functions, core wetland habitat, sites for thermoregulation, foraging, etc. The majority of Category 2 habitat exists in the vicinity of Shirley's Brook, in the string of vernal pools in KNL 8, and in the Kizell Cell. Small isolated Category 2 patches are also shown. As shown in Figure 3a, nearly the entirety of the remainder of KNL 7 & 8 are shown as Category 3 movement habitat.</p> | <p>Butternut - Butternut are distributed fairly evenly throughout the upland forest areas of the Site. Refer to Figure 9a and 9b for Butternut locations.</p> |

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| <p>How and when the species is (or may be) using the habitat to carry out its life processes</p> <p>Indicate if the habitat is being used by the species for reproduction, rearing, hibernation, over-wintering, migration, feeding, resting (including predator avoidance), dispersal, daily movement, or any other life process (please specify). If it is not clear which life process the habitat is supporting, please indicate "unknown". If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.</p> | <p>Blanding's Turtle is a permanent resident in this area, and uses different portions of the property for nesting, hibernating, foraging and movement purposes. For more information regarding the location of each area, refer to Figure 3a and 3b.</p> | <p>As this species is a plant, it uses its growing site for reproduction, dormancy, feeding and other life processes. Refer to Figure 9a and 9b.</p> |
| <p>Other available information that suggests the effects of the activity, not just the physical (direct) footprint, may overlap with species at risk occurrences and/or habitat (e.g., species expert's opinion, etc.).</p> | <p>Several project activities have been noted throughout this submission as potentially impacting habitat areas beyond the footprint of the development. The most notable potential offsite impacts are blockage of movement corridors, and the potential impact of stormwater management on the Kizell Cell. These potential impacts are discussed throughout this submission.</p> | <p>No offsite impacts on Butternut are anticipated.</p> |
| | Species 3 | Species 4 |
| <p>Species name*</p> | <p>Least Bittern</p> | |
| <p>Species status in Ontario* (provided in the SARO List)</p> | <p><input checked="" type="checkbox"/> Threatened <input type="checkbox"/> Endangered</p> | <p><input type="checkbox"/> Threatened <input type="checkbox"/> Endangered</p> |
| <p>Presence/absence of species/habitat at or near the proposed activity location*</p> | <p><input type="checkbox"/> Individuals of the species absent <input checked="" type="checkbox"/> Individuals of the species present</p> | <p><input type="checkbox"/> Individuals of the species absent <input type="checkbox"/> Individuals of the species present</p> |
| <p>Number of individuals observed and how (e.g., visual sighting, auditory observation, etc.)</p> <p>Also indicate life stage of the individuals (e.g., adult, juvenile, fruiting, etc.) where possible, dates the observations were made, the geographic coordinates of the observations, etc.</p> | <p>Three (3) individuals were observed within the Kizell Cell; one lone male and one mated pair (male and female). The mated pair displayed behavior indicative of nesting, and it was determined to be highly likely that this Least Bittern pair were nesting on the east side of the Kizell Cell, close to Goulbourn Forced Road.</p> | |
| <p>Detailed ecological description of the landscape. Include the Ecological Land Classification (ELC), Forest Ecosystem Classification (FEC), or Aquatic Resource Area (ARA) information, slope, aspect, soils, substrate, dominant plant species, associated plant species, etc.. If you require assistance in completing the required information, please contact the local MNR office.</p> | <p>Refer to description included above for Blanding's Turtle.</p> | |

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| <p>Description of habitat features on site. Note any key habitat features (e.g., nests, hibernacula, calving areas, dens, roost trees, etc) observed at or near the activity location including the geographic coordinates of the observations. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.</p> | <p>The Least Bittern uses the Kizell Cell for nesting, reproducing, rearing and foraging. A likely nest location was observed southwest of the open water patch near Goulbourn Forced Road.</p> | |
| <p>How and when the species is (or may be) using the habitat to carry out its life processes Indicate if the habitat is being used by the species for reproduction, rearing, hibernation, over-wintering, migration, feeding, resting (including predator avoidance), dispersal, daily movement, or any other life process (please specify). If it is not clear which life process the habitat is supporting, please indicate "unknown". If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.</p> | <p>The Least Bittern is a migratory species that uses this site in the core nesting season of May 1 to August 15th for nesting, reproducing, rearing and foraging.</p> | |
| <p>Other available information that suggests the effects of the activity, not just the physical (direct) footprint, may overlap with species at risk occurrences and/or habitat (e.g., species expert's opinion, etc.).</p> | <p>The primary potential impact on Least Bittern is the proposed stormwater management plan, which may directly and indirectly impact the Kizell Cell.</p> | |

5. Activity and Species at Risk Maps and Photos

Provide one or more maps of appropriate scale that clearly illustrate the following items. In cases where the activity will occur in multiple locations, the following should be illustrated for each location.

- Ecological Land Classifications (ELC), Forest Ecosystem Classifications (FEC), or Aquatic Resource Areas (ARA) for the location and surrounding area (if available);
- Topographic information;
- Any designated natural features;
- Name(s) of any waterbodies occurring at or near the activity location (if applicable);
- Current land uses (if available);
- Location and boundaries (i.e. footprint) of the proposed activity **in relation to the surrounding landscape**;
- Location of each species at risk occurrence and habitat found at or near the proposed activity location. Also, include the location and description of any habitat features (e.g., nest, hibernaculum, calving area, vernal pools, spawning beds) found at or near the proposed activity location; and
- Data sources, scale, north arrow and legend for the maps.

Use of aerial photography and satellite imagery is strongly encouraged. Please indicate the date aerial photos or satellite images were taken as well as the date maps were created.

Please list and attach relevant maps, shapefiles, photos and satellite images that are available.

Do not include personal information on maps, aerial photos and satellite images.

List of Attached Documents

Note: The total space for attachments is limited to 25MB. Links to existing FTP sites containing photos and other materials for the proposed activity can be indicated in the list of attached documents space.

Save

6. Species at Risk and Habitat that may be Affected by the Activity

In Table 4, please provide your interpretation of:

- the protected species at risk and habitats that are likely to be affected by the proposed activity; and
- how and to what extent these protected species and habitats may be affected. Where the proponent requires assistance in completing the information in this part of the form, contact the local MNR office species at risk representative.

This information and other information submitted in this form will be considered by MNR when assessing and determining whether a proposed activity is likely to contravene subsections 9(1) or 10(1) of the ESA and thus whether it is advisable for the proponent to apply for and obtain an overall benefit permit under clause 17(2)(c) of the ESA prior to proceeding with the proposed activity to avoid contravening the Act.

| Species affected by activity | How and to what extent each species or habitat may be <i>positively</i> affected | How and to what extent each species or habitat may be <i>adversely</i> affected |
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| Blanding's Turtle | <p>The quantification of created/enhanced habitat is shown in Appendix B, Table B. Each of the new habitat enhancement features is described in greater detail in the Activity Details section of this form. To offset the loss of Category 1 habitat (described in next column) 1.3 ha of functional nesting areas will be created. Three (3) new nesting areas will be created as noted in the Activity Details section of this form (Refer to Figure 6a and 6b). In addition, a large pool (80 m diameter) with a maximum depth of 2 m will also be dug on the west side of Shirley's Brook (Refer to Figure 6a). This pool is designed to function as a potential hibernacula site and will be 1.4 ha in size. The Kizell Cell is also a known overwintering site and will be protected. The total size of new functional Category 1 habitat that will be created is 2.7 ha. 4.2 ha of Category 2 habitat will also be created, primarily through the realignment of Shirley's Brook and the construction of the new large pool discussed above. These features are discussed in greater detail in the Activity Details section of this form. The total habitat balance and level of habitat loss is summarized in Appendix B, Table B. Even with these habitat enhancement measures, there will be a net loss of habitat. Habitat loss will be compensated for through the offsite fencing program described in the Activity Details section. In total, approximately 1.5 km of one way turtle fencing will be added to provide a benefit to Blanding's Turtle, and approximately 2.5 to 2.7 km of fencing will be added within the development as a mitigation measure. In total, approximately 4.0 to 4.2 km of one</p> | <p>A detailed habitat impact quantification methodology has been employed to estimate the extent of habitat loss. This analysis is summarized in the 'habitat balance sheet' included in Appendix B. Appendix B, Table B shows the total extent of habitat under pre-development conditions. In Appendix B, Table B, the estimated loss of habitat (prior to considering or quantifying any of the mitigation/enhancement works) is shown as a loss of 4.6 ha of functional Category 1 habitat and 33 ha of Category 2 habitat. It should be noted that the Shirley's Brook realignment project (approx. 15 ha of Category 2 habitat) is counted as a 'habitat loss' and then 'created habitat' to reflect the removal of the old alignment followed by the creation of the new alignment. In reality, the total size of Shirley's Brook habitat at the end of the alignment will be similar to its size prior to realignment, but the quality will be improved by habitat restoration. Category 1 habitat loss includes the loss of the five hibernacula pools at the north end of KNL 8 and the loss of the KNL 8 nesting area. The Category 2 habitat loss includes the realignment of Shirley's Brook, reduced size of terrestrial buffer areas around Shirley's Brook, removal of small isolated patches of Category 2 habitat within KNL 7 & 8 (refer to Figure 4) and the removal of Category 3 habitat throughout the development area. The previous column details how this habitat loss is offset by the creation of new habitat through habitat enhancement/mitigation measures. Even with the habitat enhancement/mitigation measures considered, there will be a net loss of Category 1, 2 and 3 habitat as summarized in Appendix B, Table B. This habitat loss is compensated for through the offsite fencing program outlined in the previous column. Potential construction stage and long term impacts on individuals will be addressed by the mitigation measures discussed in the previous column. Additional detail on mitigation measures is provided in the Alternatives Assessment Form and the Overall Benefit Permit Form.</p> |

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| | <p>way turtle exclusion fencing will be added for compensation and mitigation purposes. Based on the City of Ottawa's monitoring data, fencing at these locations could reduce road related mortality by as much as 3 to 6 turtles per year, which is a significant benefit given the relatively small size of the population (Nick Stow personal communication 2015). This fencing is shown in Figures 7a, 7b, 7c, 7d and 8 and discussed in detail in the Activity Details section of this form. In addition to the net loss of habitat, other potential impacts to the population were noted (see next column). Mitigation measures are proposed for each of these potential impacts. These mitigation measures are described in greater detail in the Alternatives Assessment Form and the Overall Benefit Permit form. These include permanent turtle exclusion fencing within the development to prevent turtles from entering the work area/development, construction stage monitoring, timing windows to avoid impacting turtles at various construction stages, homeowner awareness packages, and a post construction monitoring program to monitor and adaptively manage retained habitat areas. These mitigation measures are described in the Activity Details section of this form.</p> | <p>Please note - the discussion of Stormwater Management impacts on the Kizell Cell have primarily been presented in relation to Least Bittern (refer to below), though it should be noted that Blanding's Turtle also occur in the areas which may be affected by the SMP.</p> |
| Butternut | <p>Retained trees will be protected by standard construction tree retention measures. Tables E & F summarize which trees will be impacted or retained. Compensation will be undertaken by the Forest Gene Conservation Association and/or the Rideau Valley Conservation Foundation (RVCF). Please refer to the OBP form for additional detail. These compensation measures follow established compensation methods for Butternut and will be discussed in greater detail in the OBP form. As noted in the next column, 4 Category 2 Trees and 2 Category 3 trees will be retained and not impacted by the undertaking.</p> | <p>Tables E & F (Appendix B) and Figure 9a and 9b provide information on where Butternut Trees will be removed. The total impact level will include the removal (killing) of 33 Category 3 Trees and 77 Category 2 Trees, as well as impacting (harming) of 1 Category 3 Tree and 3 Category 2 Trees. This impact breaks down as 63 Category 2 Trees and 24 Category 3 Trees to be removed from KNL 8, 3 Category 2 Trees to be impacted in KNL 8, 14 Category 2 Trees and 9 Category 3 Trees to be removed from KNL 7, and 1 Category 3 Tree to be impacted in KNL 7. The impacts to these trees will be compensated for through measures described in the previous column. A total of 4 Category 2 Trees and 2 Category 3 Trees will not be harmed. Tables E and F (Appendix B) summarize the impacts to these trees and the tree sizes. It should be noted that the potential exists that the final configuration of the Beaver Pond under the preferred stormwater solution may be such that additional Butternut Trees may be impacted or removed. If the</p> |

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| | | ultimate SMP requires impacts to additional Butternut Trees, this will be discussed in greater detail with OMNRF, once the SMP is finalized. It is understood that if additional Butternut Trees are impacted or removed due to the revised SMP, this may necessitate a separate authorization related to that activity. |
| Least Bittern (Stormwater Management Plan) | <p>The potential loss of approximately 0.83 ha loss of breeding functionality (see next column) will be offset by the overall increase in foraging and breeding habitat proposed through the habitat compensation plan. As noted above, a total of 4.2 ha of new wetland habitat will be created over the course of this project, the majority of which will come from the Shirley's Brook realignment and associated habitat enhancement. Portions of this new wetland habitat will likely be suitable for Least Bittern nesting and foraging, including the new large pool on the west side of the Shirley's Brook realignment, which is 1.4 ha in size.</p> <p>The COSEWIC (2009, pp.9) status report for Least Bittern indicates that Least Bittern preferentially breed in marshes with tall emergent vegetation, water levels less than 1 m (usually 10-50 cm), and about 50% open water interspersed in small pockets throughout vegetated areas. Larger wetlands are generally believed to be preferred for breeding, however, the literature review presented in COSEWIC (2009) suggests that breeding birds will utilize suitable marshes less than 0.5 ha in size for nesting. As described in the Activity Details section of this form, the new 1.4 ha pool at the west side of Shirley's Brook will be constructed and planted to emulate hemi-marsh conditions within the Kizell Cell and will include a mixture of open water and emergent vegetation, suitable for Least Bittern usage. Therefore, the new pool will function to mitigate and compensate for the potential increased risk of nest mortality during infrequent storm events (see next column).</p> <p>As noted in the next column, it is not anticipated that construction activities will be undertaken within the Kizell Cell, and hence Least Bittern and their habitat will be largely avoided. The installation of the energy</p> | <p>As noted previously, Least Bittern are only known to occur in the vicinity of KNL 7 & 8 within the Kizell Cell. Therefore, the main activity that has the potential to impact them is the stormwater management plan (SMP). Current habitat conditions within the Kizell Cell as well as habitat requirements for Least Bittern and Blanding's Turtle were discussed in detail in DST (2015b) and are not reiterated here. Potential impacts associated with stormwater inflow include water level fluctuations, water quality changes, substrate quality and contaminant impacts, and changes to vegetative cover.</p> <p>The revised SMP was redesigned specifically to reduce the potential impact on the Kizell Cell and the associated Blanding's Turtle and Least Bittern habitat. As discussed in the Activity Details section of this form, the SMP has been significantly redesigned so that all flow from KNL 9 will go to the Beaver Cell (an existing licensed stormwater facility) and also so that the first flush flows (up to the first 25 mm) from KNL 7 & 8 will also be diverted to the Beaver Cell. This will reduce the overall water flow to the Kizell Cell significantly and will ensure that only clean water during infrequent major storm events will go to the Kizell Cell. This arrangement will be achieved by expanding the existing capacity in the Beaver Cell through excavation of approximately 6.5 ha of land on the northeast bank of the Beaver Cell (Robert Wingate, Associate, IBI Group, personal communication, February 5, 2015). Three (3) different expansion configurations are currently being considered for this area which may include some combination of pond expansion in City lands, residential lots, or NEA lands around KNL 9. None of these three (3) configurations would significantly impact Blanding's Turtle or Least Bittern habitat, as they would occur at the northeast side of the Beaver Cell, which has not been found to be utilized by either species. The expansion will add approximately 65,000 m³ of additional storage capacity and will ensure that the Kizell Cell is only needed for stormwater management to accept flows beyond the first flush flow relatively infrequently during major storms (Robert Wingate, Associate, IBI Group, personal communication, February 5, 2015). The redesigned stormwater management plan will no longer require installation of</p> |

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| | <p>dissipater and other work directly adjacent to the Kizell Cell should be undertaken to avoid the core migratory bird breeding season of April 15th to August 15th. This will reduce the likelihood of impacting breeding Least Bittern through noise from construction or other unforeseen disturbance.</p> | <p>berms in the Kizell Cell and new construction within the Kizell Cell will be limited to the installation of a single outlet/energy dissipater to accommodate flow beyond the first flush during major storm events. The outlet/energy dissipater will be built along the north bank of the Kizell Cell and would involve disturbance to a limited area adjacent to the wetland. The outlet would be above the permanently wet area of the wetland and this aspect of construction would not involve significant in-water work. The outlet/energy dissipater would occupy approximately 1500 m² adjacent to the edge of the wetland. The revised SMP significantly mitigates the potential impact of stormwater inflow on water quality, substrate, contaminants, and vegetative cover.</p> <p>The major unmitigated impact from the SMP is water level fluctuation. The increased storage capacity of the Beaver Cell removes the need for permanent storage in the Kizell Cell. This ensures that the static water level in the Kizell Cell will remain unchanged. Water level fluctuations are hence limited to clean water inflow during major storm events. Water level rise during major storms will be of limited duration and relatively infrequent. Least Bittern construct their nest platforms an average of 53 cm above the water's surface (Desgranges 2006). To avoid potential impacts to Least Bittern nests, water level fluctuations within the Kizell Cell would need to be limited to a maximum of approximately 40 cm during the 2 year and 5 year storm event for the majority of the Kizell Cell. It is anticipated that this threshold will be exceeded and hence there is the potential for a residual impact (discussed below). Water level fluctuations during the 20 year and the 100 year storm events will exceed these thresholds, however, it is assumed that during the 20 year and 100 year storm events there is already a risk of water level fluctuations impacting Least Bittern nests even under existing conditions. This is because water levels within the Kizell Cell will fluctuate during these major storm events regardless of the SMP, and fluctuation under natural conditions will already exceed 40 cm for portions of the wetland during the 20 year and 100 year storm events, under existing conditions. It is known that natural water level fluctuation is a source of nest mortality during major storm events, even during natural conditions (Jobin 2009; Rodgers 1999). Blanding's Turtles utilize wetlands with a diverse array of depth conditions, and hence should be able to adapt to temporary water level fluctuations of this magnitude. Blanding's Turtles tend to prefer relatively shallow wetlands (on average 30 cm deep and usually ranging from 25 to 120 cm deep), though they require access to deeper pools for vital life processes</p> |

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| | | <p>including hibernation (Kiviat 1997; Hartwig 2004; Millar & Blouin-Demers 2011). Hence the magnitude of water level fluctuation affecting the wetland will be within the range of natural variability in wetland conditions typically preferred by Blanding's Turtles.</p> <p>The probability of water level fluctuations impacting a Least Bittern nest was calculated. This was done by multiplying the proportion of the wetland that is flooded by the frequency of the event. Water level fluctuations are shown in Figure 10 and the analysis is summarized in Tables C and D. Based on this analysis, the probability of stormwater related water fluctuation impacting a nest is estimated to be 7.6% per year, averaged over a five (5) year period (Table D). This recognizes that in 2/5 years there is likely no probability of nest mortality, in 2/5 years the probability is equal to the 2 year storm event, and in 1/5 years it is equal to the 5 year storm event. It should also be noted that this is likely to be an overestimate, as Least Bittern only nest in the Ottawa area from May 1st to August 1st and so there is a chance that the 2 year and 5 year storm event would occur outside of this season (BSC 2007). Even during the nesting season, fledglings are not susceptible to flooding for the entire season. Because the relative monthly frequency of storms is not known, this factor was not built into the calculation, however it should be understood that the limited duration of the nesting season would lower the probability of nest mortality further. This translates to an average annual loss of breeding functionality of 0.83 ha (on average 7.6% of the wetland each year). It is known that Least Bittern are highly responsive to changes in wetland habitat and water levels (Jobin 2009). However, the degree to which they may be able to detect and adapt to increased probability of water level fluctuation is unknown. As shown in Figure 10, the majority of the wetland will remain relatively unaffected by the water fluctuations, particularly the central and western sections that are more isolated from human activity and road traffic. There is some potential that Least Bittern may already prefer these portions of the wetland, or may adapt to emphasize use of these areas, both to provide a more tranquil environment and to avoid water level fluctuation. Thereby, Least Bittern may potentially adapt to reduce the likelihood of mortality over time.</p> <p>Regardless, it is presumed that the entirety of the wetland will remain usable for foraging functions, as water level rises are short term and generally will not impact foraging most of the time. Based on the methodology described above and summarized in Tables C & D (Appendix B), the total potential impact on Least Bittern is estimated as</p> |

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| | | a 0.83 ha loss of breeding habitat functionality. Whether this level of impact will actually occur will be determined through long term monitoring, as discussed in the OBP form. |

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7. Submission Information

Date this form was submitted to the local MNR office (yyyy-mm-dd)*

2015-10-16

Please note: the email function will not work if you do not have your automatic email settings established. In these cases, please save a copy of your form, access your email account and attach a copy of the form for email submission to your local MNR. The list of MNR office email addresses is below for your reference.

Email Client Option *

Default Email Application (e.g., MS Outlook)

Internet Email (e.g., Yahoo or Hotmail. Save the form and send it manually to the MNR office by using internet email service.)

Local MNR office this form is submitted to*
Kemptville

MNR Email Address for reference
sar.kemptville@ontario.ca

Proposal Title*

Kanata Lakes North Development (KNL): Overall Benefit Permit Application Supplemental Material

Authorization*

I, _____ (insert name, hereafter "proponent"), confirm that the information provided in this form is accurate and complete to the best of my knowledge. I understand that a summary of the information provided in this form, excluding any personal information or details that could be used to locate or harm an endangered species, may be posted on the Ministry of Natural Resources Species at Risk website and the Environmental Registry. I also understand that this information will be used for the purpose of administering the *Endangered Species Act, 2007* and its Regulations in accordance with the *Freedom of Information and Protection of Privacy Act, 1990*.

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