

**PERMIT UNDER clause 17(2)(c) of
THE ENDANGERED SPECIES ACT, 2007**

Permit Number: KV-C-002-14

Issued to: Kanata Lakes North Development Inc. ("KNL"), 2193 Arch St.,
Ottawa Ontario, K1G 3H5

Location: Part of Lots 7, 8, & 9, Concession 2; and Part of Lots 8 & 9,
Concession 3 in the Geographic Township of March (South March
Highlands), within the area outlined by the Development Boundary in
Appendix B and identified as KNL 7 & 8 ("the Site").

Term: This permit comes in to force on the date it is issued and expires 6
months following the completion of the maintenance of the fencing
under condition 19.3.

1. **Authority:** This permit is issued to KNL under clause 17(2)(c) of the
Endangered Species Act, 2007.
2. **Application to Species:** This permit applies to the following species listed as
endangered or threatened on the Species at Risk in Ontario List:
 - (a) Blanding's Turtle (*Emydoidea blandingii*), threatened;
 - (b) Butternut (*Juglans cinerea*), endangered; and
 - (c) Least Bittern (*Ixobrychus exilis*), threatened.
3. **Authorization:** This permit authorizes KNL to engage in the activities specified
herein that would otherwise be prohibited by section 9 and section 10 of the
Endangered Species Act, 2007 in relation to the species listed in section 2.
4. **Application of Authorization:** This permit authorizes KNL to carry out the
following, to the extent necessary for the construction of a residential
development, two schools, a commercial block and associated, stormwater
Management system, roads, and servicing at the Site (the "Project"):
 - (a) remove up to seventy-seven (77) and harm up to three (3) Category 2
Butternut trees; and remove up to thirty-three (33) and harm up to one (1)
Category 3 Butternut trees, as well as damage and destroy up to 140
hectares (ha) of Butternut habitat (the habitat of 140 Butternut trees);
 - (b) kill, harm and harass Blanding's Turtle as well as damage and destroy up
to 4.77 hectares of Category 1 habitat, 33 hectares of Category 2 habitat
and 86.3 hectares of Category 3 habitat for Blanding's Turtle, and;

(c) kill, harm and harass Least Bittern in order to construct the stormwater management infrastructure required to service the development.


5. Conditions: The activities authorized by this permit are subject to all the conditions specified herein.

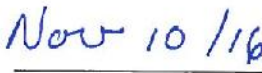
6. Appendices: The following appendices for part of this permit:

- Appendix A: Mitigation and Overall Benefit Plan
- Appendix B: Map of Site location with proposed development layout and current Blanding's Turtle habitat.
- Appendix C: Maps illustrating the locations of permanent and temporary Blanding's Turtle exclusion fencing and the location of the realigned Shirley's Brook with habitat for Blanding's Turtle.
- Appendix D: Blanding's Turtle Relocation Sites
- Appendix E: Maps showing the locations of the nesting areas and pond to be created.
- Appendix F: Map showing locations of Blanding's Turtle movement corridors.
- Appendix G: Map of off-Site Blanding's Turtle exclusion fencing at Huntmar Rd.
- Appendix H: Map showing location of Blanding's Turtle exclusion fencing at Terry Fox Dr.
- Appendix I: Map showing the location of the Blanding's Turtle exclusion fencing at Goulbourn Forced Rd. and Shirley's Brook.
- Appendix J: Map showing the location of the Blanding's Turtle exclusion fencing and crossing at Goulbourn Forced Rd. and the Kizell and Beaver Cells.
- Appendix K: Map showing the location of the study area to the west of the KNL Development to be included in the Research Project.
- Appendix L: List of Category 2 and 3 Butternuts to be impacted on KNL 7 & 8, as identified in Butternut Health Assessment Reports 15-013 and 15-012, completed on August 13, 14, 16, 17, 19, 21, 24, 29, and September 4-6 of 2015 by Rose Fleguel.
- Appendix M: Maps of locations of all Category 2 and 3 Butternuts on the Site.
- Appendix N: Map showing the location of the installation of Goulbourn Forced Road, watermain and peat extraction area.
- Appendix O: Notification/Contact Schedule
- Appendix P: Species at Risk Encounter Reporting Form

7. **Permit Copy.** The permit holder must maintain a copy of this permit on the Project site at all times when conducting activities under the authority of the permit.
8. **Mitigation and Overall Benefit Plan.** KNL shall comply with the Mitigation and Overall Benefit Plan in Appendix A to this permit to avoid and mitigate the impacts to the Species and achieve an overall benefit to the Species.

Pursuant to the authority of clause 17(2)(c) of the Endangered Species Act, 2007, I hereby issue this permit authorizing the activities described above, subject to the conditions set out herein.


Kathryn McGarry
Minister of Natural Resources and Forestry


Date of Issuance:

Appendix A: MITIGATION AND OVERALL BENEFIT PLAN

9. Definitions: In the permit, the following words shall have the following meanings:

“Archive” is a protected and managed plantation of Butternut seed, seedlings or grafts intended to conserve genetic material from selected trees of particular species for the purposes of conservation, research or seed production;

“Beaver Cell” means the area of wetland east of Goulbourn Forced Road;

“Blanding’s Turtle General Habitat Description” means the document published by the Ministry of Natural Resources and Forestry entitled “General Habitat Description for the Blanding’s Turtle (*Emydoidea blandingii*)”;

“Buffer Zone” means the area around a feature within which restrictions on Development Activities may be applied;

“Butternut Health Assessor” has the same meaning as set out in O. Reg. 242/08;

“Butternut Scion” means a small portion of a Butternut tree containing buds removed from the Butternut without causing harm to the tree, that is used for grafting;

“Category 1 Blanding’s Turtle Habitat” has the same meaning as set out in the Blanding’s Turtle General Habitat Description;

“Category 2 Blanding’s Turtle Habitat” has the same meaning as set out in the Blanding’s Turtle General Habitat Description);

“Category 3 Blanding’s Turtle Habitat” has the same meaning as set out in the Blanding’s Turtle General Habitat Description;

“Category 2 Butternut” means a Butternut tree assessed by a Butternut Health Assessor to be a category 2 tree as described in O. Reg. 242/08;

“Category 3 Butternut” means a Butternut tree assessed by a Butternut Health Assessor to be a category 3 tree as described in O. Reg. 242/08;

“Construction Travelways” means the areas where vehicles and equipment may travel within the Site;

“Development Activities” means those activities conducted by KNL to carry out the Project;

“Encounter Reporting Form” means the reporting form set out in Appendix P to this permit;

“First Flush Flow” means the initial surface runoff during a rainfall event, which requires water quality treatment. Specifically the first flush is defined as the rainfall runoff in the amount of 25 mm during a 4 hour storm event;

“Hibernaculum” means an area used, often faithfully year after year, by snakes and turtles to hibernate through the winter which provides protection against freezing and dehydration and which are often communal sites;

“Hibernation Period” means the period from when individual Blanding’s Turtles are most likely to be searching for the appropriate locations for hibernating through the winter, hibernating in, and emerging from those locations; usually from October 16 until April 15;

“Kizell Cell” means the portion of the Kizell Wetland Complex Provincially Significant Wetland west of Goulbourn Forced Road;

“Mitigation and Overall Benefit Plan” means the plan described in this Appendix A;

“MNRF” means the Kemptville District Office of the Ontario Ministry of Natural Resources and Forestry;

“Nesting Season” means the period when individual Blanding’s Turtle are most likely to be searching for the appropriate locations for nesting, establishing nest sites, and nesting; from May 30 until July 15;

“Nesting Turtle” means an individual Blanding’s Turtle that is currently in the act of digging, depositing eggs or burying deposited eggs;

“Ontario Forest Research Institute” or **“OFRI”** means the Ministry of Natural Resources and Forestry’s main forest research and monitoring section; to better understand forests and their responses to human activities, ensuring that forest management policies, planning and practices have a strong scientific foundation;

“Qualified Member” means a member of KNL’s staff, agents or contractors, who has completed training/instruction from a Qualified Professional or MNRF regarding how to perform specific tasks related to some or all of the Species;

“Qualified Professional” means, with respect to the relevant Species, a person with particular expertise who is trained or qualified in a specific area and approved by MNRF;

“Single Outlet/Energy Dissipater” means a minor system outlet that includes a flow splitter to divert the First Flush Flow to a stilling basin for pre-treatment before being directed to the Beaver Cell;

“Species” means those species to which this permit applies, namely Blanding’s Turtle (*Emydoidea blandingii*), Least Bittern (*Ixobrychus exilis*) and Butternut (*Juglans cinerea*);

“Temporarily Retained Hibernacula” means the area shown in Appendix F as Temporarily Retained Habitat;

“Turtle Active Season” means the period from April 15 until October 15 during which Blanding’s Turtles are mobile on the landscape, outside of their Hibernaculum; and

“Wildlife Custodian” means a person who holds a valid wildlife custodian authorization under the *Fish and Wildlife Conservation Act, 1997*.

MITIGATION MEASURES AND OVERALL BENEFIT PLAN

10. Information Sharing

- (a) KNL agrees to ongoing information sharing including, but not limited to, Species occurrence data, monitoring results and maintenance actions with MNRF to implement this Mitigation and Overall Benefit Plan including contacting the MNRF to provide new information as it becomes available.
- (b) In addition to the monitoring and reporting requirements as outlined in this Appendix, KNL shall provide MNRF with regular construction progress updates at all stages of the development.
- (c) All information collected under 10(a) and (b) and all research and monitoring reports required by this permit shall be provided to MNRF according to the Notification/Contact Schedule.

11. Implementation: Where reasonable, KNL shall, in consultation with a Qualified Professional, incorporate the applicable elements of this Mitigation and Overall Benefit Plan into construction contract documents including elements that relate to training, avoidance, mitigation, encounters, reporting, and exclusion systems for the Blanding’s Turtle.

12. Awareness and Training

- (a) KNL shall ensure that prior to entering the Site, all persons are provided with information and awareness training that addresses:
 - i. the existence of the Species on the Site, this Permit and the obligations of persons working on the Site under this Permit;
 - ii. identification of the Species and their habitat;
 - iii. the need for avoidance of harm to the Species due to their status as species at risk; and

- iv. the General Avoidance and Mitigation Measures set out in section 15 of this Appendix.
- (b) The content and delivery of the training under this section 12 shall be provided in a manner approved by a Qualified Professional.
- (c) KNL shall ensure that all persons described in this section 12 complete the training and review the training materials as part of each new construction contract.

13. Qualified Members

- (a) KNL shall ensure that Qualified Members:
 - i. complete the training requirements in accordance with section 12 prior to entering the Site; and
 - ii. are trained by a Qualified Professional to safely handle and relocate the Blanding's Turtle prior to handling and relocating an individual turtle.
- (b) KNL shall require that Qualified Members use appropriate equipment for the handling and temporary safe keeping and transfer of individual Blanding's Turtle.
- (c) Equipment shall be acquired and maintained on each part of the Site that is subject to a separate construction contract.
- (d) KNL shall ensure that at least one Qualified Member is present on each part of the Site that is subject to a separate construction contract any time Development Activities are taking place in that part of the Site, or is available to access that part of the Site within a reasonable time.
- (e) KNL shall keep a record of the training that is provided in accordance with conditions 12 and 13 organized on a construction contract-basis and shall include this record in the annual post-construction monitoring reports.

14. Qualified Professionals

- (a) KNL shall retain appropriately trained Qualified Professionals to carry out the following in accordance with this Mitigation and Overall Benefit Plan:
 - i. conduct surveys for each Species;
 - ii. conduct mitigation effectiveness monitoring;
 - iii. implement overall benefit measures;
 - iv. mitigation measures and impact monitoring as per condition 17.1; and
 - v. provide training in accordance with conditions 12 and 13(a)ii.

15. General Avoidance and Mitigation Measures

- 15.1 KNL shall ensure that vehicles and equipment are operated on Construction Travelways at a speed at which drivers are able to identify the Species and safely stop vehicles and equipment to avoid the Species.
- 15.2 KNL shall not conduct Development Activities that would damage or destroy Hibernacula for Blanding's Turtles during the Hibernation Period.

- 15.3 Tree clearing and vegetation removal shall be carried out during the Hibernation Period or following installation of the temporary exclusion fencing around the Site as required under condition 17.1 of this Appendix.
- 15.4 New stormwater construction within the Kizell Cell shall be limited to the installation of a Single Outlet/Energy Dissipater to accommodate flow beyond the First Flush Flow during major storm events, and the replacement of the culvert and beaver control structure that connects the Beaver Cell to the Kizell Cell.
- 15.5 All First Flush Flows up to the first 25 mm, from the Site shall be diverted directly to the existing Beaver Cell stormwater management facility.
- 15.6 KNL shall develop and implement an Erosion and Sediment Control Plan for any Development Activities in, or within the high water mark of, wetlands or waterbodies that minimizes risk of sedimentation of wetland(s) or waterbodies during all phases of the Project.
- 15.7 The Erosion and Sediment Control Plan shall be complete and submitted to the MNRF before any Development Activities take place in or within any wetlands or waterbodies and, where applicable, include:
 - (a) Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the wetland or water body.
 - (b) Measures for managing water flowing onto the Site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.
 - (c) Measures for containing and stabilizing waste material (e.g., construction waste and materials, uprooted or cut trees and plants, accumulated debris etc.) above the high water mark of nearby wetlands or waterbodies to prevent entry.
 - (d) Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.
 - (e) Repairs to erosion and sediment control measures and structures if damage occurs.
 - (f) Removal of non-biodegradable erosion and sediment control materials once the work area is stabilized.
- 15.8 KNL shall implement the sediment and erosion control measures and requirements of the Sediment and Erosion Control Plan in accordance with the plan.
- 15.9 All erosion and sediment control measures shall be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the wetland or waterbody and runoff water is clear.
- 15.10 KNL shall wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering wetlands and waterbodies.

- (a) Any machinery operated in or within the high water mark of a wetland or waterbody must arrive on site in a clean condition and shall be maintained free of fluid leaks, invasive species and noxious weeds.
 - (b) A spill response plan that is to be implemented in the event of a sediment release or spill of a deleterious substance shall be developed and an emergency spill response kit shall be kept on Site any time Development Activities are taking place.
- 15.11 If blasting is required within 30 m of the Temporarily Retained Hibernacula, the blast charge weights used should be minimized to the extent possible and, where possible, each charge should be subdivided into a series of smaller discrete charges in blast holes (i.e., decking). Blasting should be carried out in a manner that ensures no blasting material or by-products from detonation are deposited, or can otherwise enter, the Temporarily Retained Hibernacula. Ammonium nitrate-based explosives shall not be used in this area.

16. Species Encounters

- 16.1 Subject to any more specific measures in this Mitigation and Overall Benefit Plan, if an individual Blanding's Turtle or Least Bittern is encountered on the Site, any Development Activities that may adversely affect the individual shall immediately cease and in the case of Blanding's Turtle, a Qualified Member shall relocate the individual to a Turtle Relocation Site identified in Appendix D in accordance with training received.
- 16.2 If a Nesting Turtle, or the nest site of a Blanding's Turtle, is encountered within the Site, then KNL shall immediately:
- (a) cease any activity that may adversely affect the applicable turtle or its nest; and
 - (b) establish a 5 m Buffer Zone around the Nesting Turtle or nest site;
- 16.3 Once a Nesting Turtle has finished nesting and begins to move away from the nest site on her own, KNL shall:
- (a) Have a Qualified Member relocate the turtle to a Turtle Relocation Site indicated in Appendix D;
 - (b) Have a Qualified Professional carefully remove the eggs from the nest and transport them to a Wildlife Custodian authorized to keep Blanding's Turtle in captivity where they will be incubated until hatching occurs; and
 - (c) Ensure that the Wildlife Custodian relocates any nestlings that emerge to a Turtle Relocation Site indicated in Appendix D.
- 16.4 If an individual Blanding's Turtle or Least Bittern is injured or found injured within the Site, KNL shall:
- (a) ensure that the individual is protected from further harm;
 - (b) notify MNRF immediately as per the Notification/Contact Schedule; and

- (c) where it is reasonable to do so given the animal's condition and the extent of the injuries, KNL shall obtain veterinary care for the injured individual or take it to a Wildlife Custodian.
- 16.5 For greater certainty, in the event KNL obtains veterinary care under condition 16.4, KNL shall pay for that care.
- 16.6 If an individual Blanding's Turtle or Least Bittern is killed or found dead within the Site at any point during all aspects of the project, KNL shall:
 - (a) collect accurate coordinates of the location, using a GPS;
 - (b) collect it and store it in a safe, cool place; and
 - (c) Contact the MNRF within two business days to seek further instructions regarding appropriate next steps, which may include allowing an MNRF representative access to the Site to collect it.
- 16.7 After an individual Blanding's Turtle or Least Bittern has been encountered in any of the circumstances described in this section 16, including injured or dead species, or species observed on the Site, KNL shall complete an Encounter Reporting Form and submit the form to the MNRF according to the Notification/Contact Schedule no later than 2 business days after the encounter or observation.

17. Blanding's Turtle - Avoidance and Mitigation

- 17.1 **Exclusion Fencing (the Site).** Exclusion fencing shall be installed surrounding the entire Site as per Appendix C following the 2016 Turtle Active Season (October 15, 2016) and by no later than March 15, 2017. This fencing shall consist of either temporary exclusion fencing to be replaced by permanent fencing as described in condition 17.3 or permanent fencing that meets the requirements of condition 17.3, where temporary fencing can be avoided.
- 17.2 **Temporary Exclusion Fencing.** Temporary exclusion fencing shall be
 - (a) constructed using standard sediment fencing material;
 - (b) installed in accordance with the direction provided in the July 2013 Species at Risk Branch "Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing Version 1.1;
 - (c) impervious to turtles except as provided for in condition 17.5(a), iii; and
 - (d) maintained and repaired, as necessary, until the permanent exclusion fencing has been completely installed.
- 17.3 **Permanent Exclusion Fencing (the Site).** Permanent exclusion fencing shall be installed surrounding the Site as per Appendix C, by no later than March 15, 2018 and shall meet the following requirements:

- (a) If the fencing is installed during the Turtle Active Season, then the work required to install the permanent fencing must take place within the area where temporary fencing has been installed.
- (b) If the permanent exclusion fencing cannot be installed by March 15, 2018, timing changes may be requested by KNL and implemented, following review and approval by MNRF.
- (c) The permanent exclusion fencing shall consist of:
 - i. Solid fencing in the areas shown as fencing type A in Appendix C, that is effective to provide a barrier for Blanding's Turtles of any size; and
 - ii. Chain link fencing in the areas shown as fencing type B in Appendix C that is effective to provide a barrier for adult Blanding's Turtles.
- (d) The solid fencing must be any one or more the following fencing types:
 - i. Chain link fence with plastic inserts, using durable, UV resistant plastic sheeting woven into the chain link. Inserts shall be at least 60 cm tall from the ground and shall be anchored to the ground through a bottom rail and/or buried into the substrate to prevent turtles from going under the fence;
 - ii. Angled one-way wildlife exclusion fencing, specifically designed for Blanding's Turtle to permit movement of turtles off the Site, but not onto the Site. The entire length of this fence type shall be backfilled and soil shall be compacted along both sides;
 - iii. Rock gabion baskets a minimum of 60 cm in height;
 - iv. A retaining wall a minimum of 60 cm in height; or
 - v. Another type of solid fencing that provides a barrier to Blanding's Turtle movement that shall be reviewed and approved by MNRF.
- (e) If the results of the effectiveness monitoring outlined in condition 19.2 suggest that the length or type of permanent exclusion fencing installed under this condition is not appropriate to prevent access to the Site in these areas, additional fencing will be installed in consultation with MNRF.

17.4 Installation of Goulbourn Forced Road and Watermain

- (a) If road upgrades or watermain activities will be undertaken during the Turtle Active Season, temporary exclusion fencing shall be installed surrounding the road allowance of the new alignment of Goulbourn Forced Road and the watermain work area as per Appendix N and in accordance with the following requirements:
 - i. Installation of the fencing shall be complete prior to beginning work on the road allowance or watermain during the Turtle Active Season in accordance with the requirements of conditions 17.2 (a)-(c).

- ii. Prior to installation, the entire area to be fenced shall be searched for turtles by a Qualified Professional. Following completion of the fencing, the entire road allowance and watermain work area shall be searched for turtles trapped within the fenced area.
 - iii. A Qualified Member shall complete daily sweeps along the entire watermain and road allowance fencing for turtles during the Turtle Active Season.
 - iv. Any turtles found shall be gently collected, marked and assessed by a Qualified Professional as per the methodology of the Dillon Consulting Inc. Blanding's Turtles Population Estimate, Distribution and Range Study, Year 2 of 4, 2011.
 - v. Data collected shall be used to inform the mitigation effectiveness monitoring and the post-construction monitoring program.
 - vi. Following data collection all turtles shall be gently placed in an appropriate container and immediately relocated to a Turtle Relocation Site indicated in Appendix D.
 - vii. The temporary exclusion fencing installed under this condition shall be maintained and repaired as necessary throughout the Turtle Active Season.
- (b) Peat extraction in the Kizell Cell shall only occur for the purposes of stabilizing Goulbourn Forced Road and as per the following requirements:
- i. Shoring and sheet piling shall be installed where the current alignment of Goulbourn Forced Road meets the Kizell Cell as per Appendix N.
 - ii. Any shoring and sheet piling to be installed within the Kizell or Beaver Cells shall occupy no more than a total area of 0.17 ha of the habitat within these cells.
 - iii. Prior to installation of shoring or sheet piling and prior to October 30, 2016 or a date approved by MNR, the entire work area shall be fenced using temporary turtle exclusion fencing and searched for turtles by a Qualified Professional. Any turtles found within the work area shall be collected, marked, assessed, as per conditions 17.4(a) iv – v, then released in suitable habitat in the Kizell Cell.
 - iv. The temporary turtle exclusion fencing within the wetland portion of the work area shall be constructed using small wire mesh fencing that is reinforced with metal slat fencing and sunk into the sediment.
 - v. The temporary fencing within the wetland shall be tied into terrestrial portion of the temporary fencing within the work area, which shall be constructed using sediment fencing material.
 - vi. Both the wetland and terrestrial temporary fencing shall be installed in accordance with the direction provided in the July 2013 Species at Risk Branch "Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing Version 1.1.

- vii. Temporary fencing shall be maintained and repaired until the peat extraction work is completed and the shoring and sheet piling has been completely removed.
- viii. A Qualified Professional shall be present during the installation of the temporary exclusion fencing and shoring and sheet piling to ensure mitigation measures as required by this permit are in place to avoid harming Turtles.
- ix. Shoring and sheet piling shall be removed by October 15, 2017, so that the shoring and sheet piling does not result in an increase in footprint beyond that of the Goulbourn Forced Road within the Kizell wetland or below the high water mark.
- x. All material removed from the wetland shall be contained and stabilized above the high water mark of the wetland if it is to be returned to its original location once the road upgrade is complete.
- xi. Any peat removed from below the road allowance that is not to be returned to its original location shall be stockpiled in an appropriate manner for use in the creation of pond and hemi-marsh habitat creation in condition 17.7.
- xii. Any replacement rock required to complete the road upgrade must be clean, appropriately-sized and installed by October 15, 2017 and in a manner that creates a uniform shoreline.
- xiii. The peat extraction area shall be inspected each day to ensure no Blanding's Turtles are in the work area according to the following requirements:
 - 1. The area shall be inspected by a Qualified Member.
 - 2. Inspections shall occur prior to beginning work each day from April 15 until October 15, 2017.
 - 3. Any Turtles found shall be gently removed and released in suitable habitat in the Kizell Cell.
- xiv. During the installation, operation and decommissioning of the shoring and sheet piling, erosion and sediment control measures shall be carried out as per the erosion and sediment control plan described in condition 15.7.
- xv. Water pumped from within the extraction area shall be treated by filtration through a geotextile filter bag, and then allowed to seep overland before running off back into the Kizell Cell as soon as possible.
- xvi. The duration of water pumping must be limited to the extent possible to minimize impacts to water levels in the Kizell Cell Hibernacula.

17.5 Removal of Hibernacula

- (a) Temporary Exclusion Fencing shall be installed around the Temporarily Retained Hibernacula by no later than March 15, 2017. The fencing shall be constructed and maintained as follows:
- i. The fencing shall be installed in accordance with the conditions in 17.2 (a)-(c) using standard sediment fencing material. It shall be regularly inspected and maintained and repaired, as necessary, until all Hibernacula sites are removed within the area of the Temporarily Retained Hibernacula;
 - ii. The temporary exclusion fencing area shall enclose the Temporarily Retained Hibernacula and a buffer of retained vegetation with the purpose of ensuring the safety and functionality of the Hibernacula; and
 - iii. The fenced area shall also include a corridor linking the Temporarily Retained Hibernacula and the passage culvert to the northeast which provided a safe exit route from the Temporarily Retained Hibernacula, but that prevents turtles from entering back into the Temporarily Retained Hibernacula.
- (b) The Temporarily Retained Hibernacula shall be searched for any remaining turtles using the following methods:
- i. Each Hibernaculum to be removed shall be dewatered, beginning no earlier than August 1, 2017 and completed no later than August 15, 2017;
 - ii. A Qualified Professional shall be on the Site during the entire process of dewatering to search for turtles;
 - iii. Immediately upon completion of the dewatering for each Hibernaculum, the Qualified Professional shall search that Hibernaculum in its entirety for any remaining turtles; and
 - iv. Any turtles found shall be gently collected, marked, assessed, and relocated as per conditions 17.4(a) iv – vi.

17.6 Nesting Habitat Creation

- (a) KNL shall create six new nesting habitat areas for Blanding's Turtle, totalling no less than 1.3 ha in size, at the locations shown in Appendix E.
- i. The nesting areas shall be completed and ready for Blanding's Turtles to use by April 15, 2017;
 - ii. If the nesting areas cannot be completed by April 15, 2017, timing changes may be requested by KNL and implemented, following review and approval by MNRF; and
 - iii. The created nesting areas shall be connected to other retained and created Category 1, 2, and 3 Blanding's Turtle habitat.

(b) KNL shall circulate to MNR, for consultation, a plan to establish the newly created nesting sites (the "Nesting Habitat Plan") by February 15, 2017. The Nesting Habitat Plan will include:

- i. Composition of the substrate and herbaceous and woody species to be planted;
- ii. Planting and tending plans;
- iii. Measures to monitor habitat establishment and evaluate success; and
- iv. Supplementary actions to be taken should some threshold of native planting survival not be achieved or should native or invasive species threaten to overwhelm the site.

(c) KNL shall carry out the activities set out in the Nesting Habitat Plan in accordance with that plan.

17.7 Pond and Hemi-Marsh Habitat Creation

(a) KNL shall create a minimum of two (2) new off-line ponds totalling at least 1.4 ha in area, to either side of Shirley's Brook, at the locations shown in Appendix E.

- i. The primary purpose of the ponds are to function as Hibernacula and core Category 2 Habitat for Blanding's Turtle;
- ii. The secondary purpose of the ponds are to function as Least Bittern nesting and foraging habitat;
- iii. The ponds shall be dug to either side of the tributary of the relocated Shirley's Brook;
- iv. Two thirds of the ponds' area shall include a deep pool with a depth gradient; with maximum depth of 2 m, and an average depth of 1 m;
- v. The remaining one third of the ponds' area shall consist of shallow, hemi-marsh habitat, with an average depth of 30 cm;
- vi. The ponds shall be excavated by April 15, 2017;
- vii. The planting and naturalization of the hemi-marsh habitat shall occur in the summer and fall of 2017 and be complete by March 15, 2018, followed by tending and monitoring in accordance with the plan described below;
- viii. KNL shall submit to MNR, for approval, a plan to establish hemi-marsh habitat (the "Hemi-Marsh Habitat Plan") in and around the pond by February 15, 2017. The Hemi-Marsh Habitat Plan will include:
 1. The location and amount of open water and emergent vegetation habitats;
 2. Composition of the native wetland and riparian species to be planted;

3. Composition of the planting medium;
 4. Placement of habitat structures (e.g., woody debris and other natural cover and basking materials) and organic substrates;
 5. Planting and tending plans;
 6. Measures to monitor habitat establishment and evaluate success; and
 7. Supplementary actions to be taken should some threshold of native planting survival not be achieved.
- ix. KNL shall carry out the activities set out in the Hemi-Marsh Habitat Plan in accordance with that plan.

17.8 Shirley's Brook Re-Alignment and Corridors.

- (a) KNL shall realign Shirley's Brook at the location shown in Appendix C and create habitat for Blanding's Turtle in accordance with following:
- i. The realignment of Shirley's Brook shall include a minimum of 4.2 ha of new created Category 2 Habitat for Blanding's Turtle that meets the following requirements:
 1. The Category 2 Habitat shall be a minimum of 30 metres wide, of which the wetted width of the stream shall be between 1 metre and 4 metres, and the remainder shall be a buffer of riparian habitat.
 2. The re-alignment will incorporate natural stream design principles.
 - ii. The construction of the realigned portion of Shirley's Brook shall take place prior to July 1, 2017; and the planting and naturalization of the stream, including the riparian habitat shall occur in summer and fall of 2017, and be complete by March 15, 2018 followed by tending and monitoring in accordance with the plan described below;
 - iii. KNL shall submit to MNRF, for approval, a plan to establish riparian habitat (the "Riparian Habitat Creation Plan") by February 15, 2017. The Riparian Habitat Creation Plan will include:
 1. Composition of the native herbaceous, shrub, and tree species to be planted;
 2. Placement of habitat structures (e.g., woody debris and other natural cover and basking materials);
 3. Planting and tending plans;
 4. Measures to monitor habitat establishment and evaluate success; and
 5. Supplementary actions to be taken should some threshold of native planting survival not be achieved.

- iv. KNL shall carry out those activities set out in the Riparian Habitat Creation Plan in accordance with the plan.
- (b) The original alignment of Shirley's Brook shall not be removed or impacted until the planting and naturalization of the re-alignment is complete under condition 17.8. (a) ii; and
- (c) During the removal of the original alignment of Shirley's Brook, KNL shall have a Qualified Professional on-Site prepared to collect, mark, assess, and relocate any Blanding's Turtles found according to conditions 17.4(a) iv - vi.

17.9 **Category 3 Habitat**

- (a) KNL shall minimize the loss of Category 3 Habitat for movement, by maintaining the existing turtle movement corridor from Terry Fox Drive at the railway line, north/northeast to the wildlife passage culvert under Terry Fox Drive, immediately west of the new Goulbourn forced road.

17.10 **Stormwater Management Plan:** Construction of the Single Outlet/Energy Dissipater to accommodate flows beyond the First Flush Flow shall occur during summer months only and include the following mitigation measures:

- (a) Construction and installation of the Single Outlet/Energy Dissipater shall be carried out between July 20th and August 31st to minimize impacts to Blanding's Turtle and Least Bittern;
- (b) Construction and installation of the Single Outlet/Energy Dissipater shall be completed by August 31, 2021;
- (c) The staging and construction areas shall be fenced-off with temporary exclusion fencing to guide turtles around the work area. The fencing shall be installed in accordance with conditions 17.2 (a) – (c) and maintained until the completion of the construction of the Single Outlet/Energy Dissipater;
- (d) A Qualified Member shall search for and clear all species at risk from the work site and relocated to an area of suitable habitat within the Kizell Cell that is outside of the fenced area before any work begins each day;
- (e) All machinery that arrives on this work-site shall be in a clean condition and be maintained free of fluid leaks, invasive species and noxious weeds;
- (f) Whenever possible, operate machinery on land above the high water mark and in a manner that minimizes disturbance to the wetland and adjacent terrestrial buffer;
- (g) Clearing of wetland and terrestrial vegetation should be kept to a minimum and measures should be taken to minimize soil disturbance and compaction. When practicable, prune or top the vegetation instead of grubbing/uprooting;
- (h) Minimize the removal of natural woody debris, rocks, sand or other materials from the wetland, wetland edge or below the ordinary high water mark. If material is removed then it should be set aside and returned as

close as possible to the original location once installation activities are completed;

- (i) Immediately stabilize any areas disturbed during the installation to prevent erosion and/or sedimentation, preferably through re-planting of the wetland or terrestrial species originally found at the site, or else native species suitable for the site;
- (j) Restore bed and banks of the wetland to their original contour and gradient;
- (k) If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform wetland edge; and
- (l) Remove all construction materials from site upon project completion.

17.11 Additional Mitigation Measures and Impact Monitoring: Monitoring for impacts to Blanding's Turtles and these additional mitigation measures shall begin with the start of Development Activities and shall include the following:

- (a) Prior to vegetation clearing, significant habitat features to be retained shall be marked, and all persons entering the Site including contractors shall be advised of the position of these features to be retained;
- (b) Where necessary, features to be retained shall be identified through the installation of snow fencing;
- (c) Prior to vegetation clearing, sweeps for Blanding's Turtles shall be undertaken in all vegetated areas by a Qualified Professional;
- (d) Fencing and work areas shall be inspected by a Qualified Professional prior to commencement of any work to ensure the mitigation measures required by this permit are in place;
- (e) To minimize Blanding's Turtle impacts, inspections shall be conducted by a Qualified Professional at least once per week during vegetation clearing and tree removal on the Site within the Turtle Active Season for the years of 2017 and 2018, or until the installation of permanent turtle exclusion fencing has been completed, whichever comes first. The inspections/ shall include:
 - i. Confirmation of the limits of tree and vegetation removal;
 - ii. Monitoring of concurrent construction of new habitat features on the Site; and
 - iii. Inspection of exclusion fencing;
- (f) The frequency of inspections required under condition 17.11(e) shall increase during critical work phases in order to minimize impacts, when the risk to Blanding's Turtles is high (e.g., following emergence, during the nesting season, September). The increase shall be anywhere between twice a week to daily, to be determined in consultation with a Qualified

Professional based on the work being done and potential risks to Blanding's Turtle;

- (g) Any dewatering works shall be monitored full time by a Qualified Professional during the dewatering set up and water draw down;
- (h) Any turtles found during and after water draw down shall be gently collected, marked, assessed, and relocated as per conditions 17.4 (a) iv. – vi.;
- (i) Daily checks of equipment and work areas shall be completed by the contractor to ensure no turtles are present;
- (j) If turtles are found during vegetation sweeps, work in the immediate area shall cease immediately and the turtle shall be gently collected, marked, assessed, and relocated as per conditions 17.4(a) iv. - vi.; and
- (k) Should any exclusion fencing be found to be ineffective, KNL shall implement additional measures to correct or replace the fencing.

17.12 Habitat Enhancement Monitoring shall be conducted by a Qualified Professional, and include the following requirements:

- (a) The construction of all new habitat features or habitat enhancement features both on and off the Site shall be supervised by a Qualified Professional to ensure adherence to drawings and specifications;
- (b) The newly created or enhanced habitat features shall be monitored and maintained for four years through implementation of the post-construction monitoring program as outlined in condition 19.1;
- (c) The post-construction monitoring program shall provide information on the state, quality and use of all created and enhanced habitat and shall be used to determine the effectiveness of these mitigation measures; and
- (d) Should monitoring find that any of the created or enhanced habitat features under conditions 17.6 to 17.8, require maintenance or improvements, KNL shall take actions to correct or improve these habitats.

18. Blanding's Turtle - Overall Benefit

18.1 Habitat Creation and Enhancement

- (a) KNL shall upgrade Goulbourn Forced Road where it crosses the Kizell and Beaver Cells in consultation with a Qualified Professional, at the location shown in Appendix J, to allow Blanding's Turtle movement under the road, through a turtle passage system as follows:
 - i. The passage will be separate from the hydrological connection between the Kizell Cell and the Beaver Cell;
 - ii. The passage shall be a dry passage box culvert;

- iii. The passage shall measure approximately 32 m long and shall be rectangular, with dimensions of approximately 1200 mm x 900 mm; and
 - iv. Fencing and road design shall direct Blanding's Turtles to the passage culvert.
- (b) KNL in consultation with a Qualified Professional shall provide to MNRF, for consultation, the design of the turtle passage system at least 3 months prior to installation; and
- (c) The turtle passage system shall be completed under the supervision of a Qualified Professional by August 15, 2017 in accordance with the designs under condition 18.1(b). If the passage system cannot be completed by August 15, 2017, timing changes may be requested by KNL and implemented, following review and approval by MNRF. Any construction activities associated with installation of the turtle passage system shall be undertaken in a manner that minimizes adverse effects on Blanding's Turtle.

18.2 Off-Site Fencing

- (a) KNL shall install permanent one-way turtle exclusion fencing by April 15, 2017, at the following off-Site locations (the "Off-Site Fencing"):
- i. Along Huntmar Drive, south of the railway line, as illustrated in Appendix G;
 - ii. Along Terry Fox Drive, where the rail line meets the road, as illustrated in Appendix H;
 - iii. Along Goulbourn Forced Road where the Kizell Cell meets Goulbourn Forced Road, as illustrated in Appendix J; and
 - iv. Along Goulbourn Forced Road where Shirley's Brook meets Goulbourn Forced Road as illustrated in Appendix I
- (b) Despite condition 18.2(a), if additional time is required to install the Off-Site Fencing, KNL may complete the Off-Site Fencing between July 31 and August 31, 2017 provided the following requirements are met:
- i. Temporary turtle exclusion fencing shall be installed in all areas where the Off-Site Fencing is not complete before April 15, 2017.
 - ii. Temporary fencing shall be installed in accordance with conditions 17.2(a) – (c).
 - iii. The area where the fencing is being installed shall be searched for turtles prior to work beginning each day.
 - iv. Any turtle found within the work area shall be carefully moved to the nearest safe location in the direction it was heading, according to the "Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders".

- v. Temporary fencing shall be maintained and repaired, as necessary, until the Off-Site Fencing has been completely installed.

- (c) Off-Site Fencing shall be solid fencing and must be any one or more types described in condition 17.3(d) and designed in consultation with a Qualified Professional specifically for Blanding's Turtles to allow Blanding's Turtles to move off the road, but not enter the road.

18.3 Research Project:

- (a) KNL shall undertake and oversee the completion of a research project that improves scientific knowledge on the ecology, management, habitat usage, and conservation of Blanding's Turtle (the "Research Project");
- (b) The Research Project shall be undertaken by a research team from an accredited Canadian university consisting of a Principal Investigator, a Doctoral Researcher (PhD Student or Masters Student), and any other researchers chosen by the Principal Investigator (the "Research Team");
- (c) KNL shall submit, at least 3 months prior to the initial field season in 2017, a full research proposal to the MNRF for review and approval that has been completed by the Research Team;
- (d) The Research Project shall occur over four consecutive field seasons, commencing in spring 2017 and ending in October 2020;
- (e) The Research Project shall result in a minimum of one peer reviewed technical or scientific report of its results, which may include a Doctoral Thesis and/or additional reports/papers;
- (f) Any other resulting report(s), Doctoral Thesis, or technical paper shall be submitted for publication to a peer-reviewed scientific journal, or otherwise made available to the public;
- (g) The Principal Investigator shall have full discretion in terms of the interpretation, publication, and dissemination of the research study results, subject to the requirements of this permit;
- (h) The Research Team shall have full discretion in partnering with other researchers, employing additional students to participate in the study, and in how authorship of academic papers is determined;
- (i) Members of the Research Team shall collect monitoring data for a minimum four year period, beginning in April 2017 and ending in October 2020 with a focus on the areas in Appendix K; and
- (j) If a suitable Doctoral Researcher is not available by January 1, 2017, the Research Project and its associated deadlines in conditions 18.3 (c), (d), and (i) above may be postponed by one calendar year.

18.4 Research Project Requirements:

- (a) The monitoring data shall include the collection of telemetry data using contemporary and acceptable technologies to document the movement of Blanding's Turtles across the landscape;
- (b) Sampling each year shall document the movement of Blanding's Turtle throughout the Turtle Active Season;
- (c) Data collected shall be of sufficient resolution to identify Blanding's Turtle movement patterns, the occurrence of Blanding's Turtles within core wetland habitats, and whether Blanding's Turtles are using the new habitat created by KNL for the fulfillment of the conditions of this permit;
- (d) The data shall be of sufficient resolution to demonstrate whether turtle exclusion fencing throughout the Site and in off-Site areas is effectively controlling turtle movement;
- (e) The data shall be of sufficient resolution to identify seasonal movement patterns including use of natural and created nesting areas, hibernacula, movement corridors, and use of core wetlands;
- (f) Research undertaken in the study area shall commence in the area that was previously studied by Dillon Consulting Inc. during their long term radio telemetry study conducted for the City of Ottawa. This shall include the lands within the Site;
- (g) The monitoring program shall also include the Kizell Cell and Beaver Cell;
- (h) Where possible the study shall also include the areas of Blanding's Turtle habitat to the north of the Site in the South March Highlands Conservation Forest, shown in Appendix B;
- (i) Where possible the study shall also include the areas of Blanding's Turtle habitat from the west boundary of the Site to the off-Site fencing location at Huntmar Drive, as shown in Appendix K;
- (j) Members of the Research Team shall:
 - i. Monitor and record any observations regarding the condition of all turtle exclusion fencing built around the Site and in off-Site areas at least once per year;
 - ii. Report any observations of damage to the fencing, incidents of turtles on roadways, or suspected faults in the fencing to KNL immediately;
 - iii. Collect telemetry data that documents turtle movement around fencing;
 - iv. Document any observations of turtle mortality on roads through use of GPS and provide to the Corporation;
 - v. Monitor the condition of the created Blanding's Turtle habitat areas to determine whether they are being used by Blanding's Turtles; which will include a minimum of 20 hours each year during which water levels will be monitored in the wetland, vegetation coverage and

composition will be monitored in the wetland and nesting areas, and the presence of invasive plant species will also be monitored; and

- vi. Monitoring shall include a representative photographic record of the condition of these features, with representative photographs taken a minimum of twice each growing season.
- (k) KNL shall provide an annual report to MNRF by December 31 of each year of the Research Project that includes at a minimum the following information:
- i. All data collected from (a) to (j);
 - ii. A summary of the results of that year's research and monitoring efforts;
 - iii. Any trends in turtle movement, habitat usage, mortality, population size, and effectiveness of mitigation measures;
 - iv. Description of any findings pertaining to the South March Highlands Blanding's Turtle population and the potential management of Blanding's Turtle populations;
 - v. Evaluation and use of retained and created habitat;
 - vi. Sampling methods used; and
 - vii. Challenges and proposed improvements in the sampling program.

19. Blanding's Turtle - Effectiveness Monitoring, Reports and Maintenance

19.1 Post-construction Monitoring:

- (a) KNL shall carry out a post-construction monitoring program for a minimum of four years beginning March 15, 2017 which shall include the following:
- i. Monitoring of Blanding's Turtle permanent fencing system, passage culverts, and any road and development access points to identify any flaws in the fencing or restrictions to movement;
 - ii. Monitoring of the Off-Site Fencing and permanent exclusion fencing around the Site in accordance with the requirements of condition 19.2;
 - iii. Annual Blanding's Turtle habitat monitoring and habitat usage monitoring for four years, from 2017 until 2020 to assess post-construction impacts; and
 - iv. Vegetation maintenance and monitoring of any new or enhanced habitat features.
- (b) The post-construction monitoring program shall take place in accordance with a plan approved by MNRF. The plan shall be submitted to the MNRF no later than Feb 15, 2017.
- (c) Annual reports shall be submitted to MNRF by December 31st of each monitoring year, and include the following:

- i. Maintenance record of mitigation measures and any created or enhanced habitat;
 - ii. Any use of new or enhanced habitat features and crossings by Blanding's Turtles;
 - iii. Information collected through monitoring under condition 19.2, including the results on the effectiveness of the fencing; and
 - iv. Any issues or challenges associated with the mitigation measures.
- (d) A final monitoring report shall be submitted to MNRF by March 31, 2021 that summarizes the data collected over the post-construction monitoring period.

19.2 Permanent Fencing Monitoring Requirements

- (a) Effectiveness monitoring of the Off-Site Fencing and permanent exclusion fencing around the Site shall be carried out in accordance with the following:
- i. Surveys shall be carried out on foot and shall cover the road surface and adjacent right-of-way for the entire length of the exclusion fencing, plus an additional 50 metres from either limit.
 - ii. Surveys shall be carried out a minimum of once per week from May 15 through July 15 and August 24 through October 15 for four years, beginning the first year following completion of the fencing.
 - iii. During each survey the following data will be collected:
 - 1. Date and weather (cloud cover, precipitation, temperature);
 - 2. Photo and location (in UTM coordinates using NAD 83 projection) of Blanding's turtles (live, dead, or fragments of shell) or their nests (either recently dug or predated); and
 - 3. Information on sex and life stage of Blanding's turtles observed, where possible.
- (b) Results on the effectiveness of the fencing, including the information collected under condition 19.2 (a) shall be included in the annual reports produced in compliance with clause 19.1 (c).
- (c) If the results of the effectiveness monitoring suggest that the length of the fencing installed is not adequate to prevent access to the road surface in these areas, additional fencing will be installed in consultation with MNRF.

19.3 Ongoing Maintenance of Off-Site Fencing. Following the post-construction monitoring program, KNL shall continue the maintenance of the Off-Site Fencing for a minimum of fifteen (15) years

20. Butternut

20.1 Butternut Retention

- (a) Ten Butternut trees shall be retained in open space blocks, as illustrated in Appendix M.
- (b) A Qualified Professional shall be consulted to identify the specific 10 Butternut trees for retention within areas where retention is possible.
- (c) In order to minimize the adverse effects to the 10 retained Butternut, during the construction phase, KNL shall:
 - i. Take reasonable steps to avoid direct physical impacts to the 10 Butternut, and avoid soil disturbance within a 25 m radius of each;
 - ii. Minimize damage to the roots of the 10 Butternut by cleanly cutting damaged roots and mulching exposed roots to prevent further damage;
 - iii. Mitigate soil erosion around the 10 Butternut during the construction phase of the Project by minimizing vegetation removal, re-vegetating disturbed areas and installing silt fencing around the construction perimeter adjacent to the Butternut; and
 - iv. Delineate the boundaries of work areas on the Site and clearly mark the 10 Butternut.

20.2 Butternut Archiving

- (a) KNL shall collect a minimum of 200 Butternut Scions from four Category 3 Butternut trees (50 per tree) that have been approved by MNRF. Butternut Scions will be collected during late February or March, no later than 2018 by a Qualified Professional.
- (b) At least 120 of the Butternut Scions (30 per tree) collected under condition 20.2 (a) shall be grafted to become part of a Butternut archiving program. This shall include:
 - i. grafting the collected Butternut Scions;
 - ii. tending the grafts for the first two years in a protected greenhouse and cold storage areas; and
 - iii. planting the grafts in a protected Archive and tending them for the following 3 years until they are well-established.
- (c) All grafting, tending and archiving under condition 20.2(b) shall be done by a Qualified Professional or organization with appropriate expertise.
- (d) KNL shall donate the remaining Butternut Scions collected under condition 20.2 (a) that were not grafted and planted under condition 20.2 (b) to the OFRI.

20.3 Stewardship Program. KNL shall undertake a Butternut Stewardship Program in consultation with a Qualified Professional beginning no later than 2018. The Stewardship Program will include the following:

- (a) Outreach and engagement of between 100 – 200 private landowners across eastern Ontario who own property with Butternut or suitable habitat for Butternut;
- (b) Seed forecasting to support seed collection;
- (c) Collection of seeds for use in the Stewardship Program from suitable seed collection trees which show putative tolerance to Butternut Canker, or from healthy Butternut in groups of greater than 10 trees and individual healthy trees but with unknown tolerance levels. Suitable seed collection trees will be selected by a Qualified Professional;
- (d) Leaf sample collection for DNA testing to ensure no seeds from hybrids are planted as part the program;
- (e) The production of 2000 Butternut seedlings from seeds collected from healthy Butternut trees under condition 20.3(c) for distribution to private landowners for planting for stewardship purposes only;
- (f) The seed collection must be complete by October 30, 2018 following which the seeds will be tended:
 - i. Seeds shall be sown in a nursery setting in the fall of the year they are collected, by no later than October 30, and tended by a Qualified Professional until outplanting;
 - ii. All seeds shall be tended in the nursery for one full growing season; and
 - iii. Surviving seedlings to be outplanted shall be lifted the following spring and planted at locations established for stewardship purposes.
- (g) Distribution of the seedlings for planting to private landowners shall occur between April 1 and May 15 or Sept 20 and October 30, in batches of 10 to 20 seedlings to between 100 and 200 different landowners across eastern Ontario, resulting in a total distribution of 2000 seedlings.
- (h) Planting of all seedlings must be complete by October 30, 2020 resulting in the production of between 100 and 200 new Butternut populations by October 30, 2020 across eastern Ontario with the goal of them being monitored by private landowners for a duration of five years.

20.4 Archiving and Stewardship Program Reports

- (a) KNL shall provide an archiving final report to the MNRF on or before December 31st 2022. The report shall include the results of the Butternut archiving completed under condition 20.2 including:
 - i. Information on the number of Butternut Scions provided for archiving;
 - ii. The number of surviving grafts;

- iii. The number and location of grafted Butternut seedlings outplanted; and
 - iv. Information on the number of Butternut Scions that were donated to OFRI.
- (b) KNL shall provide a Stewardship Program final report to the MNRF on or before December 31st 2020. The report shall include the results of the Butternut stewardship program completed under condition 20.3 including:
- i. General locations of the sources of Butternut seeds;
 - ii. Methods of forecasting and collecting of seeds;
 - iii. Results of seed forecasting;
 - iv. Results of outreach and engagement of landowners;
 - v. Results of the creation of new Butternut populations;
 - vi. Number of seedlings distributed to landowners;
 - vii. summary of seedlings planted per geographic township; and
 - viii. Number of site visits conducted.

21. Least Bittern

21.1 Species Mitigation

- (a) As set out in condition 17.7, the pond and hemi-marsh habitat created under that condition shall function as foraging and breeding habitat for Least Bittern.

21.2 Mitigation Monitoring

- (a) KNL shall retain a Qualified Professional to perform three years of Least Bittern monitoring that includes the following:
- i. Least Bittern population monitoring shall occur in the Kizell Cell, the Beaver Cell, and the pond and hemi-marsh habitat created under condition 17.7;
 - ii. Monitoring shall occur for three consecutive years beginning no later than the first year after the permit is issued;
 - iii. Population monitoring shall be completed using the National Least Bittern Survey Protocol published by Environment Canada; and
 - iv. Information collected in compliance with the post-construction monitoring program under condition 19.1 shall be used to supplement the population monitoring efforts where appropriate.
- (b) Results of the monitoring shall be provided to MNRF annually by December 31 of each monitoring year, and include the following:
- i. Results of the surveys conducted at each location;

- ii. Description of each habitat quality and any notable changes that may impact the species;
- iii. Maintenance record of mitigation measures of any created or enhanced habitat of Least Bittern;
- iv. Any use of new or enhanced habitat features by Least Bitterns; and
- v. Any issues or challenges associated with the mitigation measures.

21.3 Least Bittern Overall Benefit

(a) A Least Bittern study shall be performed by a Qualified Professional with the purpose of assessing habitat quality and use by Least Bittern; and shall include the following criteria:

- i. The study shall occur over three consecutive years commencing following the completion of the stormwater management system servicing the Site and once 80% of the development is occupied;
- ii. Monitoring for the study shall begin the first breeding bird season following the completion of the stormwater management system for the KNL developments;
- iii. Monitoring shall occur in the Kizell Cell, the Beaver Cell, and the pond and hemi-marsh habitat created under condition 17.7;
- iv. A presence/absence survey following the National Least Bittern Survey Protocol;
- v. Assessment of current habitat quality at each of the three locations described in condition 21.3 (a)iii and any notable changes since the avoidance and mitigation monitoring;
- vi. Habitat assessment shall include a representative photographic record of the conditions of each location, with representative photographs taken a minimum of twice each growing season; and
- vii. Determination of whether a change in habitat usage by Least Bittern has occurred in any of the three locations.

(b) A final report shall be written and submitted to the MNRF by March 1, following the final year of surveys, that details:

- i. Sampling methods used and monitoring effort;
- ii. All data collected from condition 21.3 (a);
- iii. A summary of the results of the study;
- iv. Evaluation and use of retained and created habitat ; and
- v. Description of any findings pertaining to the population of Least Bittern at the Site and the potential importance of any findings.

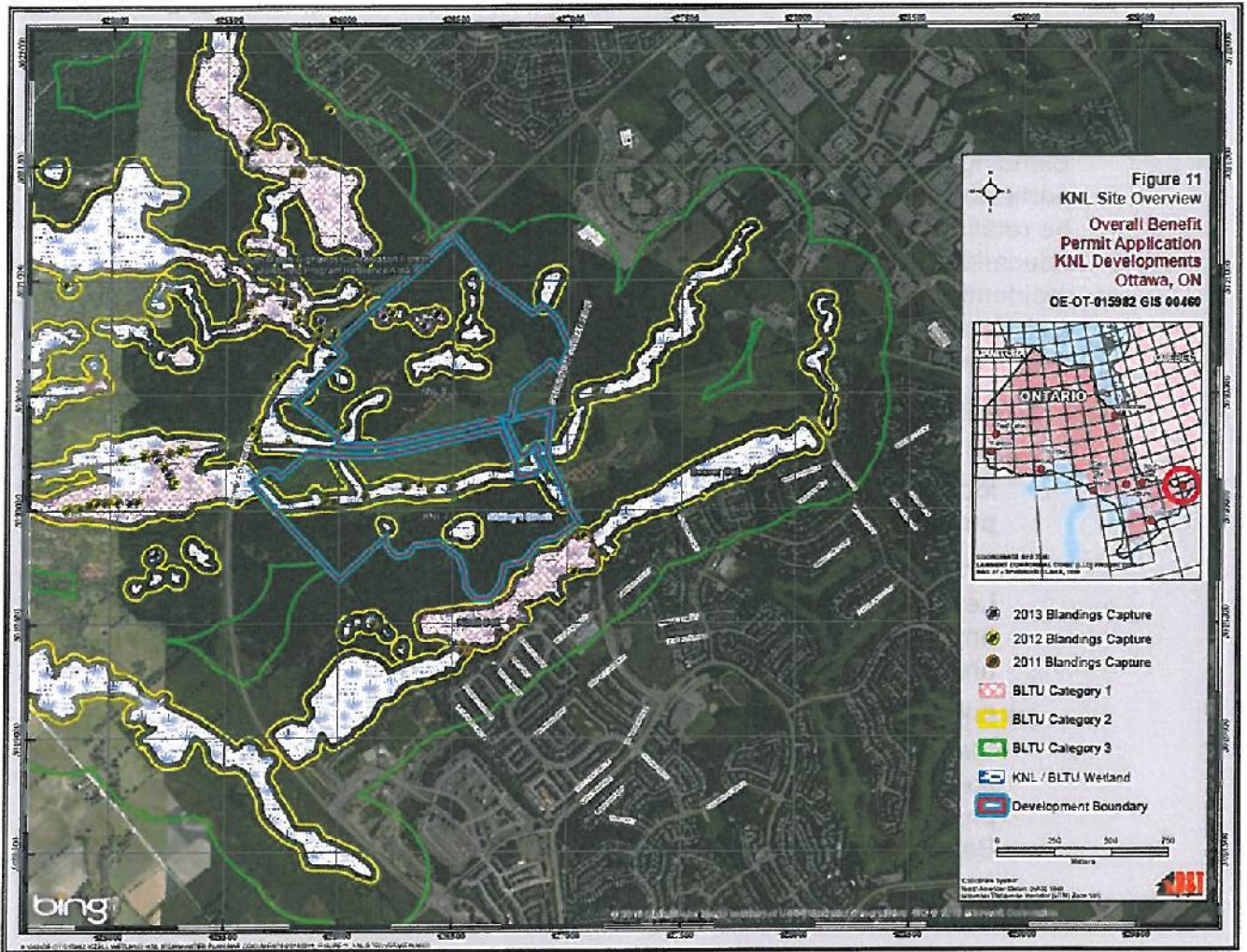
22. Additional General Conditions

22.1 Homeowner Awareness Packages shall be provided to educate homeowners on the presence of species at risk and their habitat, including Blanding's Turtle, Least Bittern, and Butternut, road mortality, as well as threats to species at risk. The packages shall also include a description of the impacts of road mortality on Blanding's Turtle and Least Bittern, and the need for driver awareness; particularly in June and early July. This homeowner awareness package should be retained by the homeowner and will be transferred with title. In addition, educational signs shall be posted along recreational trails to further educate residents regarding the Species. The homeowner awareness packages shall also include a message advising residents to report observations of Blanding's Turtle (either live or dead) to the MNRF.

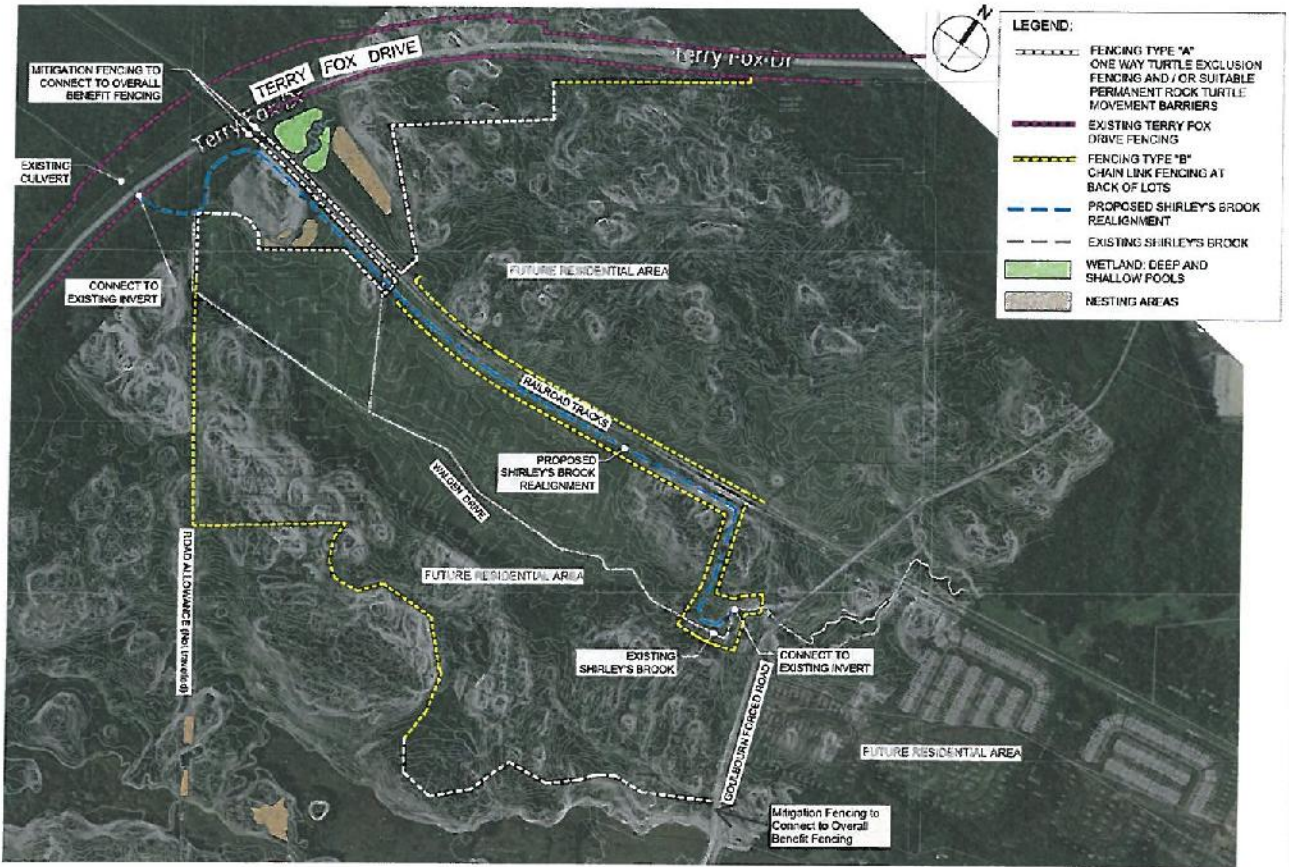
22.2 Observation

- (a) On reasonable notice, KNL shall allow access to the Butternut Scion locations to staff of the MNRF and others accompanying them for the purposes of observing the grafted trees.
- (b) On reasonable notice, KNL shall allow access to the Blanding's Turtle and Least Bittern Mitigation and Overall Benefit locations to staff of the MNRF and others accompanying them for the purposes of observing the Mitigation and Overall Benefit implemented at these locations.
- (c) If KNL does not own the property or the ownership of the property has been transferred, KNL shall undertake reasonable steps to obtain permission for the MNRF, and others accompanying them to continue to enter that property for the purposes of observing the above Mitigation and Overall Benefit measures.

Appendix B: Map of Site location with proposed development layout and current Blanding's Turtle habitat.

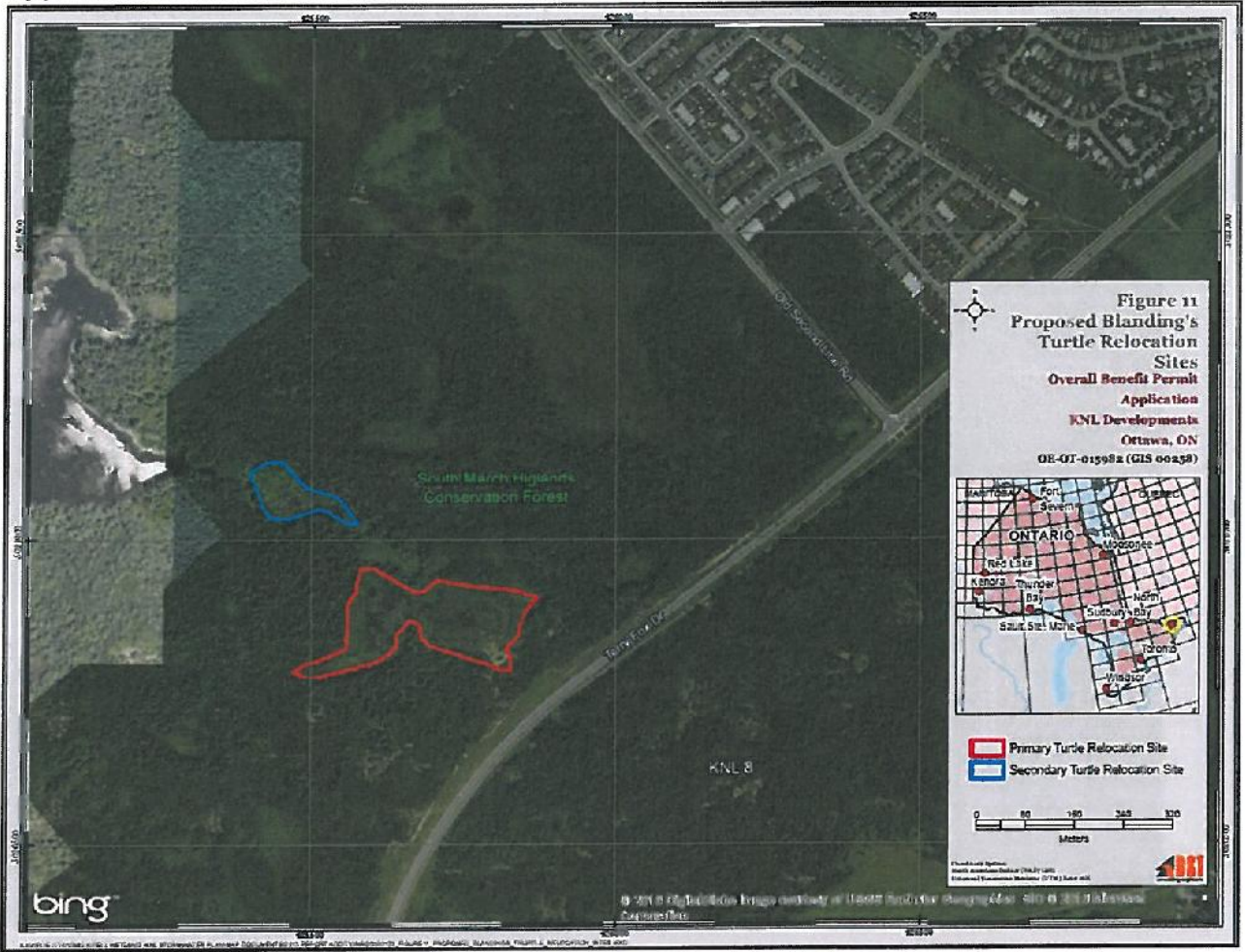


Appendix C: Map illustrating the locations of permanent and temporary Blanding's Turtle exclusion fencing, and the location of the realigned Shirley's Brook with habitat for Blanding's Turtle.

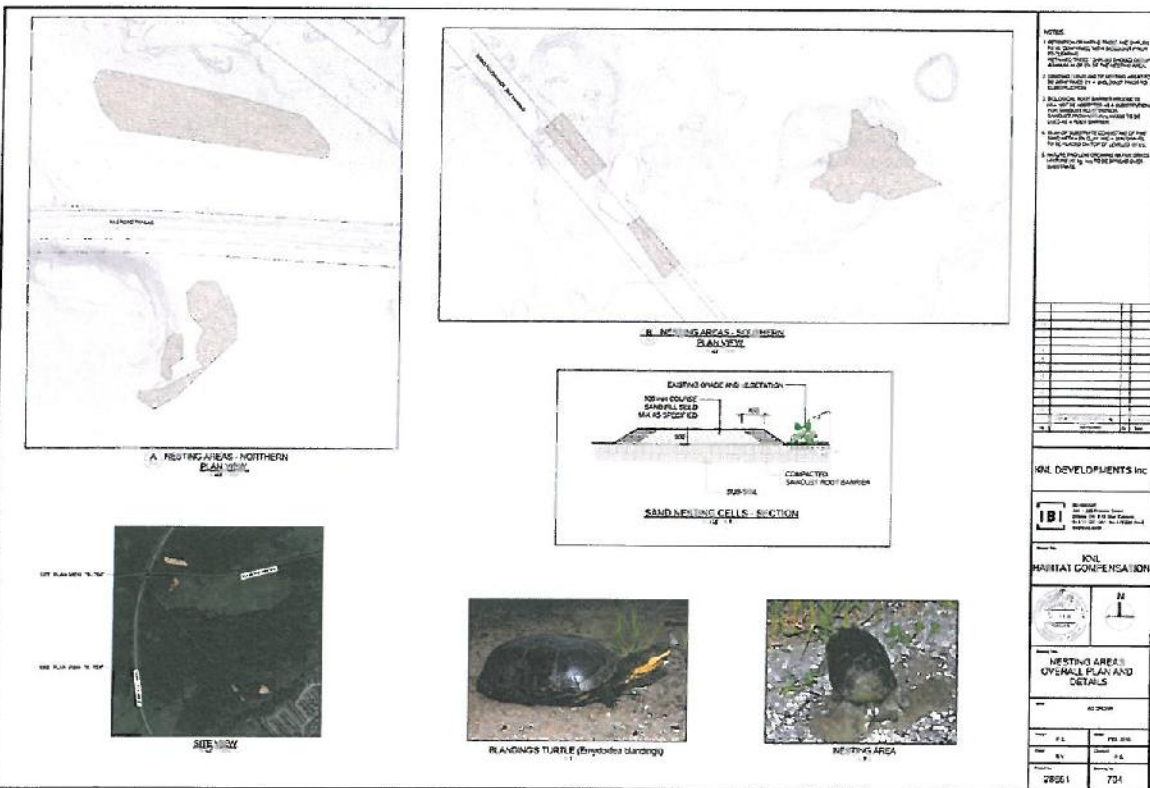
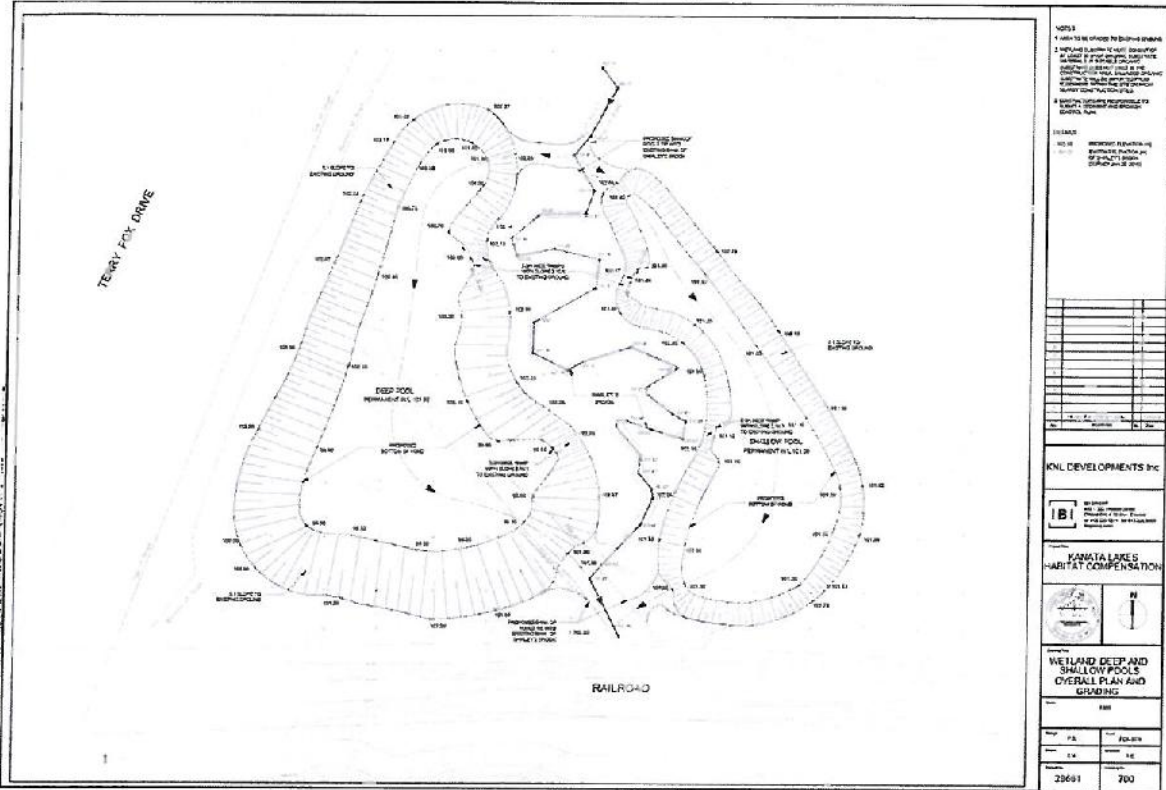


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 Drawing Title: FENCING PROTECTION AND SHIRLEY'S BROOK REALIGNMENT OVERALL PLAN
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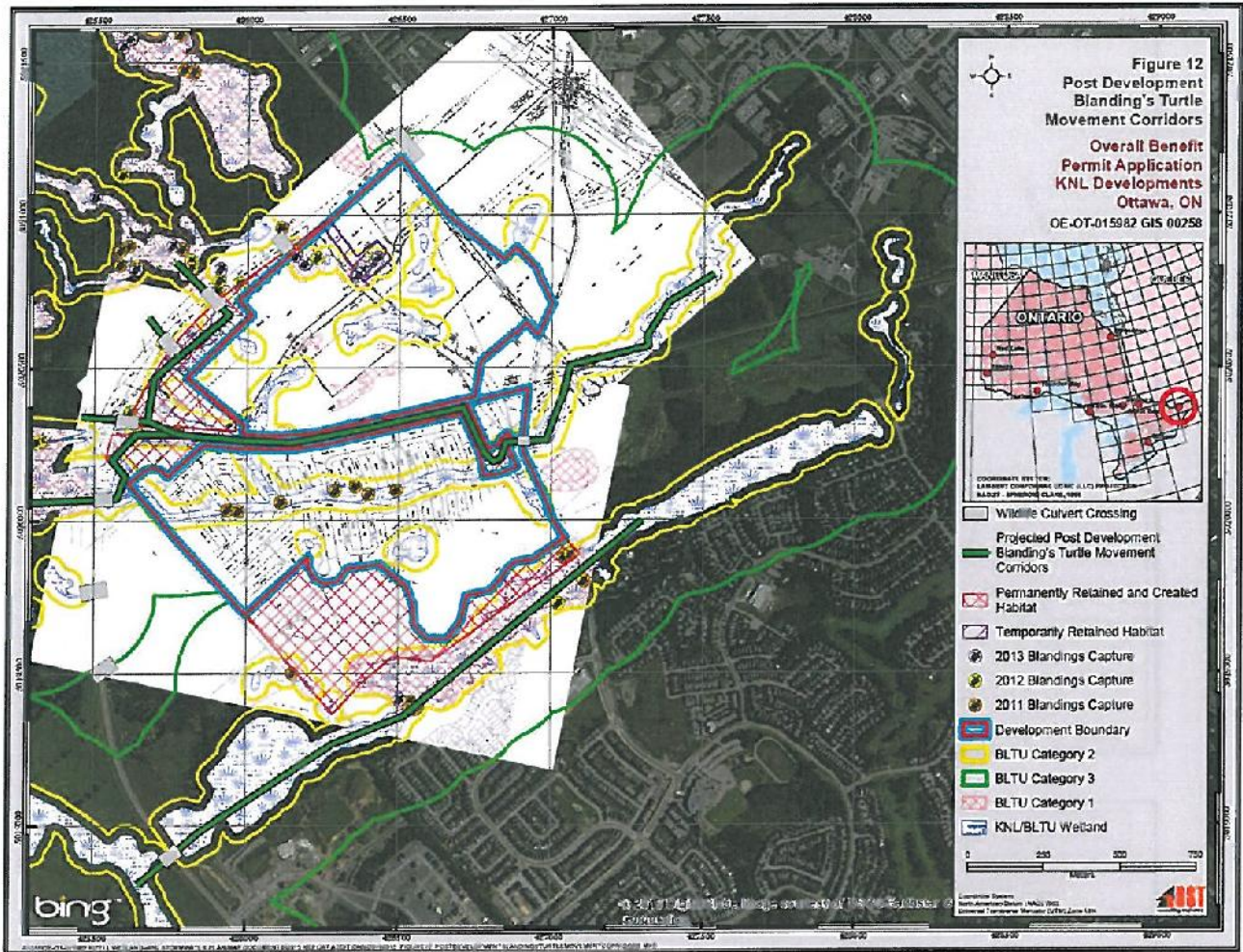
Appendix D: Blanding's Turtle Relocation Sites.



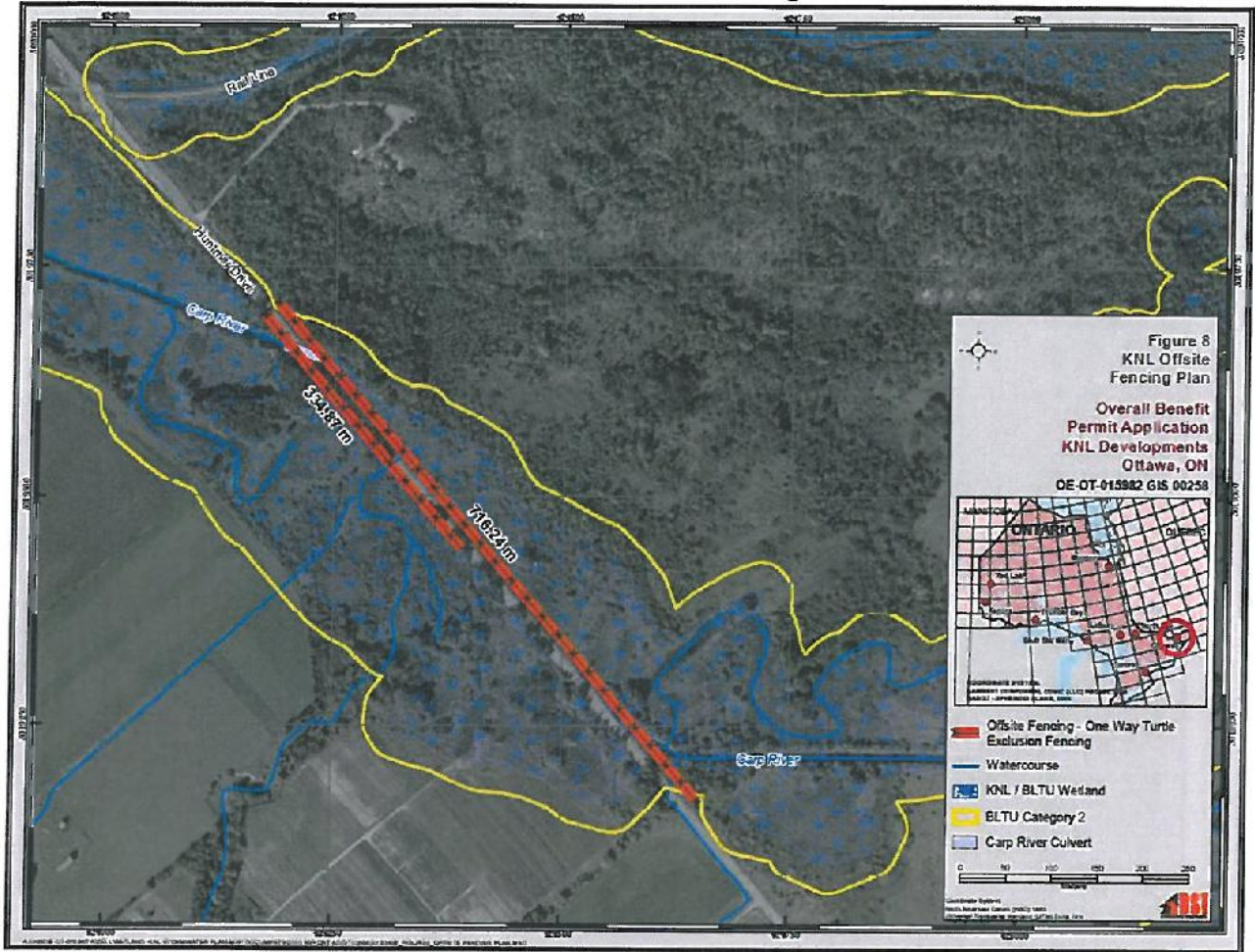
Appendix E: Maps showing the locations of the nesting areas and pond to be created



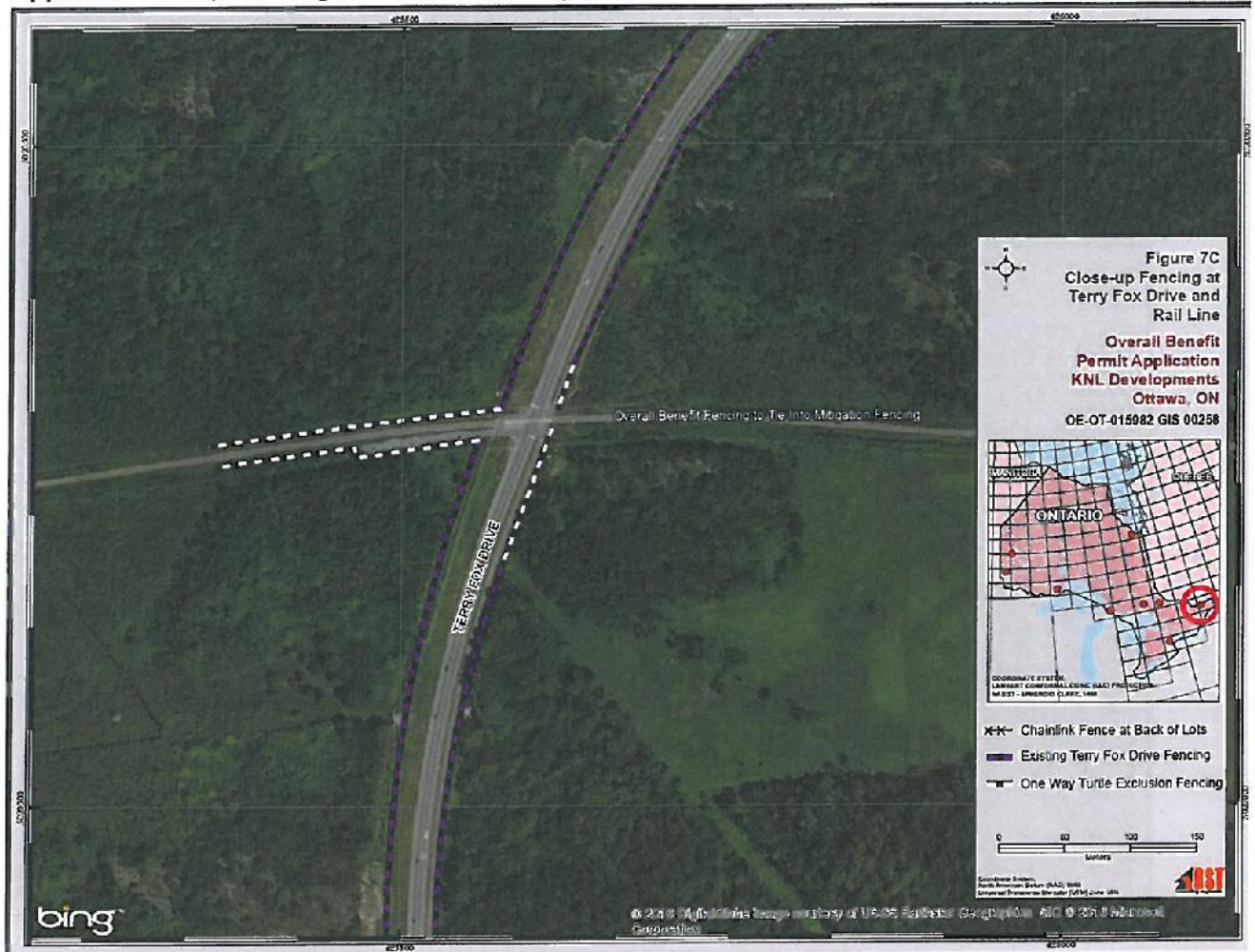
Appendix F: Map showing current Blanding's Turtle movement corridors



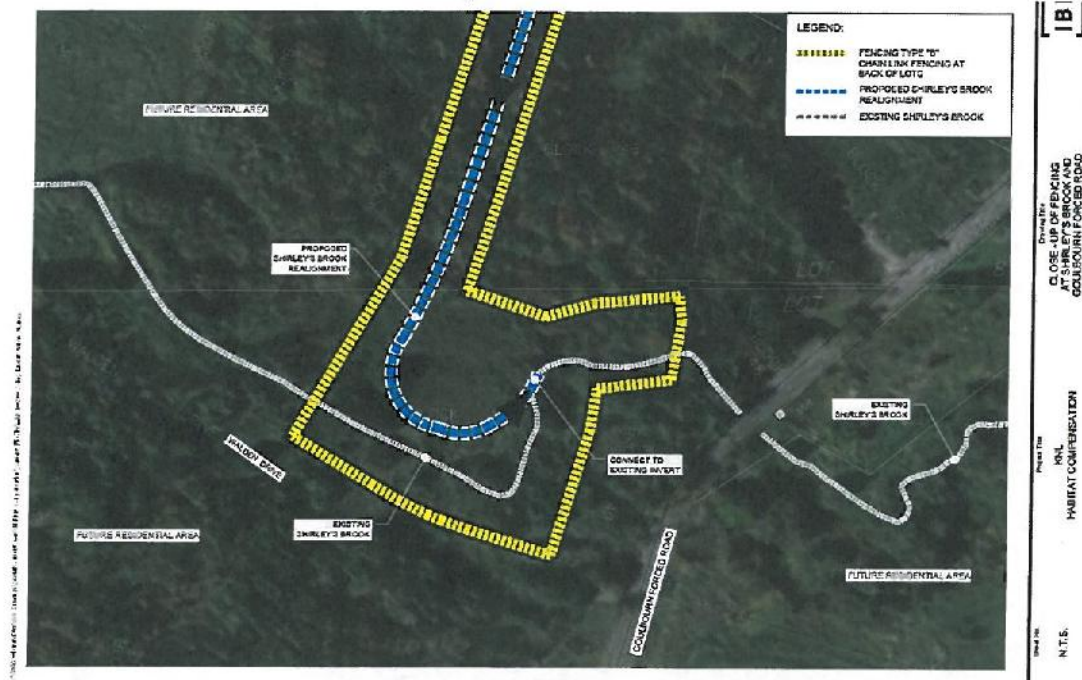
Appendix G: Map of off-Site Blanding's Turtle exclusion fencing at Huntmar Rd.



Appendix H: Map showing location of Blanding's Turtle exclusion fencing at Terry Fox Dr.



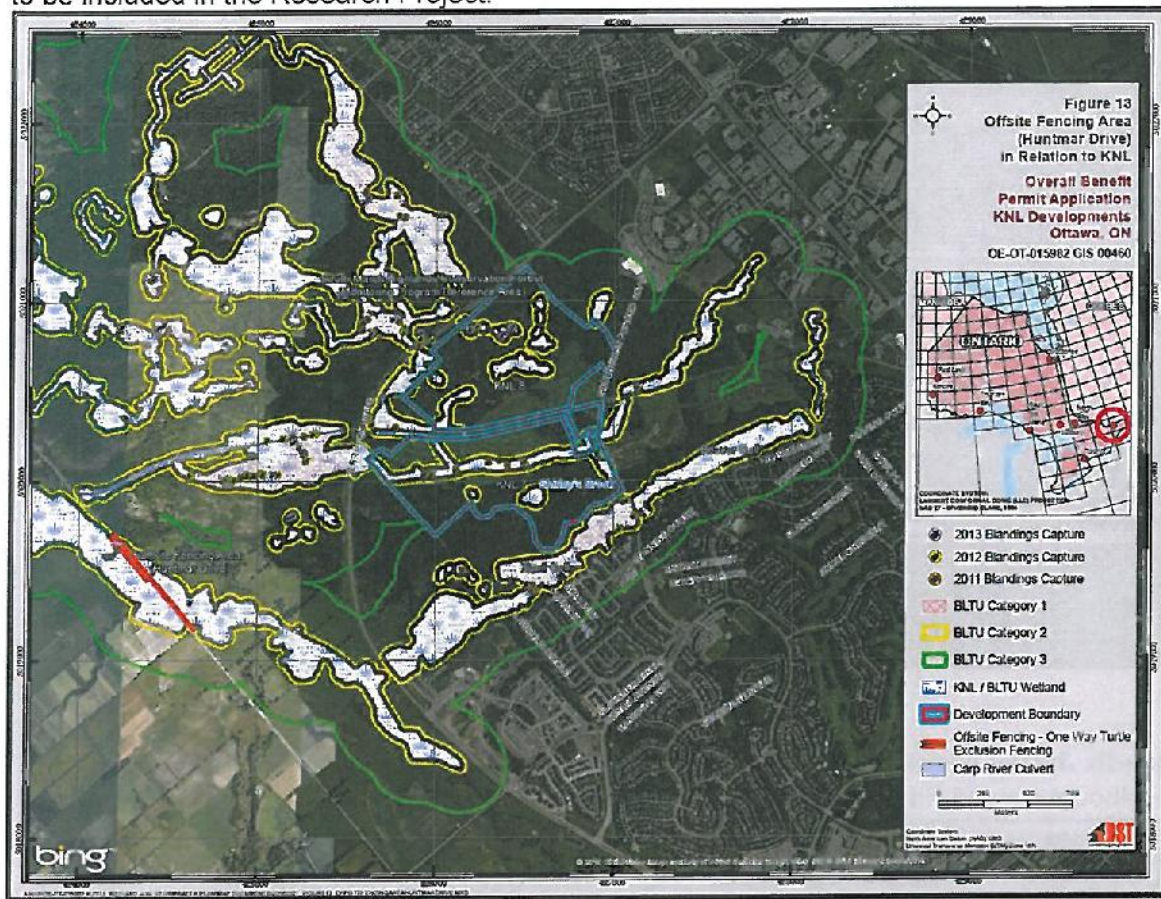
Appendix I: Map showing the location of the Blanding's Turtle exclusion fencing and crossing at Goulbourn Forced Rd. and Shirley's Brook.



Appendix J: Map showing the location of the Blanding's Turtle exclusion fencing and crossing at Goulbourn Forced Rd. and the Kizell and Beaver Cells.



Appendix K: Map showing the location of the study area to the west of the KNL Development to be included in the Research Project.



Appendix L: List of Category 2 and 3 Butternuts to be impacted on KNL 7 & 8, as identified in Butternut Health Assessment Reports 15-013 and 15-012, completed on August 13, 14, 16, 17, 19, 21, 24, 29, and September 4-6 of 2015 by Rose Fleguel.

Table E: KNL 7 Retainable Butternuts

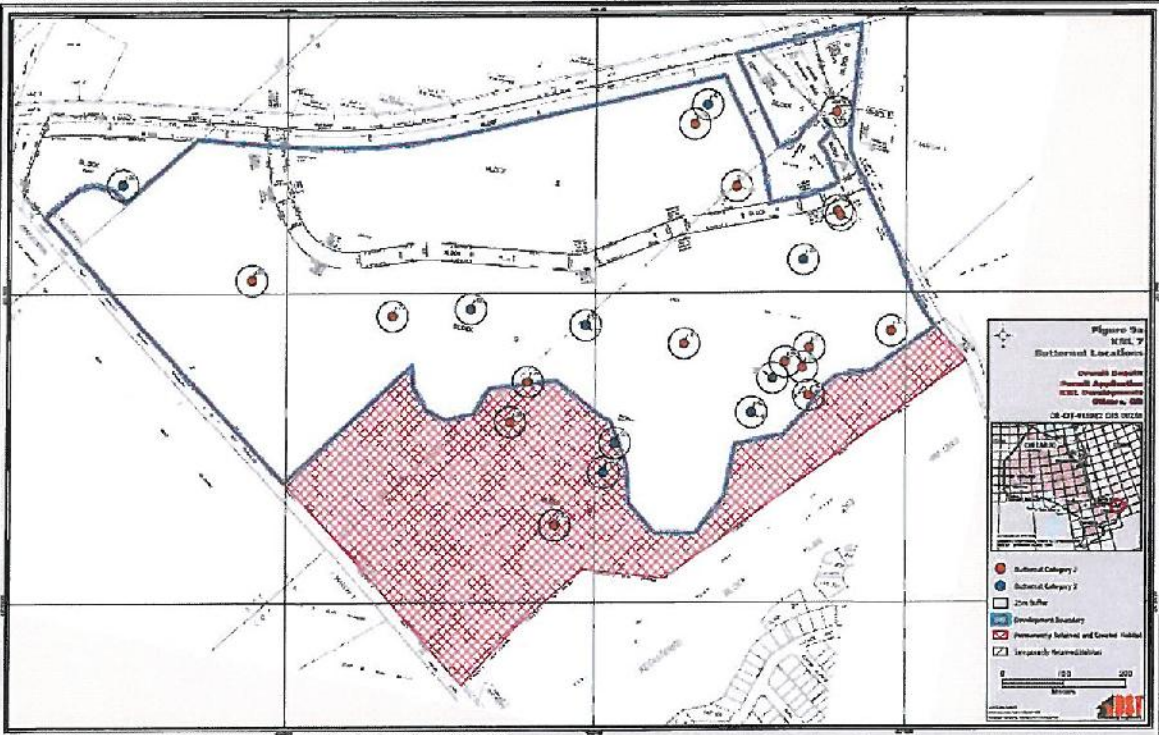
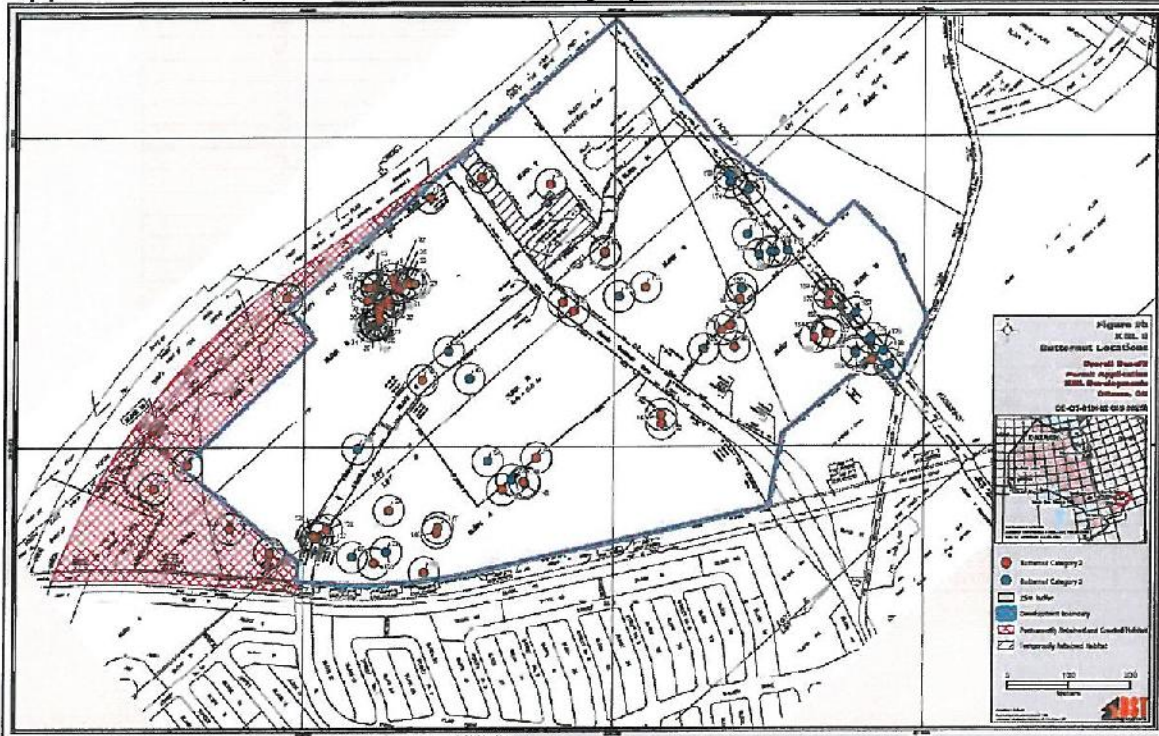
Tree #	UTM Coordinates	Tree Category	DBH	Status	Compensation Seedlings Required
1	E0426785 N5020338	3	31	Killed	200
6	E0426679 N5020303	3	39	Killed	200
10	E0426658 N5020272	2	1	Killed	2
15	E0426726 N5020171	2	3	Killed	5
16	E0426889 N5020131	2	19	Killed	20
17	E0426894 N5020123	2	19	Killed	20
22	E0426887 N5020291	2	25	Killed	20
25	E0426785 N5019881	3	22	Killed	200
27	E0426844 N5019910	2	12	Killed	5
29	E0426833 N5019878	2	2	Killed	2
31	E0426977 N5019937	2	9	Killed	5
32	E0426805 N5019887	2	12	Killed	5
38	E0426834 N5020052	3	56	Killed	200
41	E0426751 N5019806	3	51	Killed	200
42	E0426751 N5019806	3	47	Killed	200
46	E0426843 N5019833	2	4	Killed	5
47	E0426642 N5019917	2	27	Killed	20
50	E0426531 N5019757	3	38	Impacted	100
52	E0426513 N5019710	3	36	Unimpacted	0
57	E0426484 N5019947	3	51	Killed	200
58	E0426484 N5019947	3	51	Killed	200
68	E0426299 N5019973	3	36	Killed	200
73	E0426172 N5019962	2	37	Killed	20
74	E0426391 N5019856	2	58	Killed	20
76	E0426435 N5019625	2	27	Unimpacted	0
80	E0425736 N5020175	3	32	Unimpacted	0
85	E0425945 N5020020	2	31	Killed	20
89	E0426363 N5019791	2	34	Unimpacted	0
Total					2069

Table F: KNL 8 Retainable Butternuts

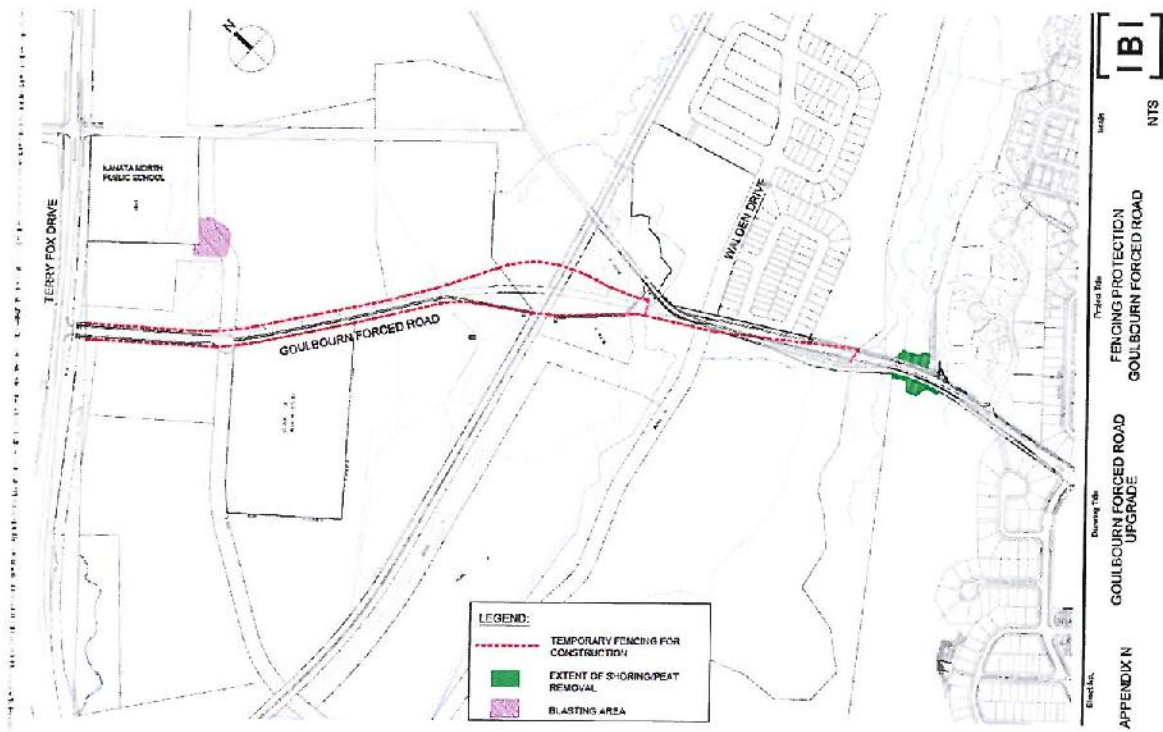
Tree #	UTM Coordinates	Tree Category	DBH	Status	Compensation Seedlings Required
1	E0426352 N5021010	2	1	Killed	2
2	E0426202 N5020902	2	1	Killed	2
4	E0425971 N5020740	2	1	Impacted	1
7	E0426285 N5020934	2	56	Killed	20
8	E0426142 N5020772	2	1	Killed	2
9	E0426116 N5020756	2	1	Killed	2
10	E0426114 N5020761	2	1	Killed	2
11	E0426115 N5020757	2	1	Killed	2
12	E0426101 N5020736	2	1	Killed	2
13	E0426103 N5020757	2	1	Killed	2
14	E0425812 N5020472	2	1	Impacted	1
16	E0425758 N5020434	2	1	Unimpacted	0
18	E0426126 N5020731	2	1	Killed	2
19	E0426135 N5020733	2	1	Killed	2
20	E0426115 N5020761	2	1	Killed	2
21	E0426135 N5020738	2	1	Killed	2
22	E0426136 N5020728	2	1	Killed	2
23	E0426106 N5020695	2	1	Killed	2
24	E0426112 N5020698	2	1	Killed	2
25	E0426113 N5020698	2	1	Killed	2
26	E0426116 N5020698	2	1	Killed	2
27	E0426115 N5020698	2	1	Killed	2
28	E0426120 N5020701	2	1	Killed	2
29	E0426122 N5020704	2	1	Killed	2
30	E0426117 N5020714	2	1	Killed	2
31	E0426119 N5020723	2	1	Killed	2
32	E0426145 N5020760	2	1	Killed	2
33	E0426166 N5020766	2	1	Killed	2
34	E0426171 N5020764	2	1	Killed	2
35	E0426170 N5020762	2	1	Killed	2
36	E0426152 N5020756	2	1	Killed	2
37	E0426178 N5020763	2	1	Killed	2
39	E0426397 N5020923	2	1	Killed	2
42	E0426267 N5020610	3	29	Killed	200
43	E0426191 N5020608	2	1	Killed	2
45	E0426233 N5020654	3	55	Killed	200
54	E0426297 N5020478	3	29	Killed	200
57	E0426137 N5020399	2	58	Killed	20
60	E0425945 N5020331	2	1	Impacted	1
66	E0426078 N5020324	3	24	Killed	200
73	E0426133 N5020332	3	57	Killed	200
75	E0426336 N5020448	3	36	Killed	200
76	E0426376 N5020483	2	14	Killed	5
79	E0426418 N5020733	2	1	Killed	2
80	E0426435 N5020719	2	1	Killed	2
84	E0426508 N5020742	3	51	Killed	200
87	E0426644 N5020657	3	51	Killed	200
88	E0426694 N5020660	2	48	Killed	20
89	E0426673 N5020688	2	31	Killed	20
96	E0426485 N5020811	2	1	Killed	2
97	E0426485 N5020815	2	1	Killed	2
132	E0426023 N5020357	2	1	Killed	2
133	E0426020 N5020354	2	1	Killed	2
144	E0426356 N5020445	2	1	Killed	2
147	E0426217 N5020371	2	1	Killed	2
148	E0426215 N5020363	2	1	Killed	2
150	E0426113 N5020314	2	1	Killed	2
153	E0426550 N5020757	2	1	Killed	2
157	E0426848 N5020681	2	1	Killed	2
158	E0426890 N5020653	2	1	Killed	2
130	E0426037 N5020368	2	2	Killed	2
138	E0426015 N5020359	2	2	Killed	2
142	E0426576 N5020552	2	2	Killed	2
143	E0426357 N5020442	2	2	Killed	2

152	E0426577 N5020537	2	2	Killed	2
151	E0426195 N5020299	2	11	Killed	5
145	E0426321 N5020432	2	16	Killed	20
162	E0426916 N5020639	2	19	Killed	20
154	E0426823 N5020675	2	21	Killed	20
99	E0426702 N5020738	2	24	Killed	20
169	E0426846 N5020745	2	27	Killed	20
98	E0426687 N5020695	2	33	Killed	20
170	E0426845 N5020729	2	39	Killed	20
155	E0426842 N5020684	2	58	Killed	20
156	E0426844 N5020681	2	72	Killed	20
135	E0425881 N5020370	2	2	Unimpacted	0
108	E0426752 N5020814	3	21	Killed	200
117	E0426714 N5020842	3	26	Killed	200
167	E0426890 N5020715	3	27	Killed	200
109	E0426733 N5020809	3	33	Killed	200
100	E0426705 N5020754	3	38	Killed	200
107	E0426759 N5020814	3	41	Killed	200
159	E0426890 N5020649	3	43	Killed	200
128	E0426086 N5020498	3	51	Killed	200
179	E0426935 N5020654	3	51	Killed	200
180	E0426935 N5020654	3	51	Killed	200
178	E0426915 N5020674	3	52	Killed	200
181	E0426945 N5020632	3	56	Killed	200
173	E0426684 N5020938	3	57	Killed	200
175	E0426716 N5020914	3	68	Killed	200
174	E0426686 N5020925	3	75	Killed	200
176	E0426779 N5020816	3	79	Killed	200
	Total				5169

Appendix M: Maps of locations of all Category 2 and 3 Butternuts on the Site.



APPENDIX N – Map showing the location of the installation of Goulbourn Forced Road, watermain and peat extraction area.



APPENDIX O - NOTIFICATION/CONTACT SCHEDULE

Telephone / Email:

All contact by telephone for notification / reporting / inquiries regarding the Project, Habitat Creation/Enhancement activities, or Species encounters relating to this permit should be directed to:

Primary Contact:
Management Biologist
613-258-8204
SAR.Kemptville@ontario.ca

Secondary Contact:
Scott Lee
Resources Operations Supervisor
613-258-8230

Fax:

All faxed notification / reporting / inquiries regarding the Project, Habitat Creation/Enhancement activities, or Species encounters relating to this permit should be directed to:

FAX #: 613-258-1430

Mailing Address:

All mailed notification / reporting / inquiries regarding the Project, Habitat Creation/Enhancement activities, or Species encounters relating to this permit should be directed to:

Ministry of Natural Resources and Forestry
Kemptville District
Postal Bag 2002, 10 Campus Dr.
Kemptville, ON K0G 1J0

Notes:

1. The preferred method of contact with the MNRF is by email, and all communications should reference the permit #: KV-C-002-14.
2. This Schedule may be updated or replaced from time to time by the MNRF.

**APPENDIX P: SPECIES AT RISK ENCOUNTER REPORTING FORM
KANATA LAKES NORTH DEVELOPMENT INC.**

Overall Benefit Permit # KV-C-002-14

Following any contact with a species protected under the *Endangered Species Act, 2007* this form is to be completed by the Qualified Member involved and forwarded to the Kemptville District Species at Risk email address (sar.kemptville@ontario.ca).

Name of Observer

Date and Time of Encounter

Species Encountered

Location of Encounter (Township, Lot/Con, Road, Address, etc.)

UTM Coordinates (NAD 83)

Zone

Easting

Northing

Accuracy (m) – if available

General description of observation (size of specimen, description of site, were pictures taken? If so, please forward via email to SAR inbox indicated above.

Describe action taken (if any) and by whom: