Kanata Highlands

Integrated Environmental Review Study

Plan of Subdivision / Zoning By-law Amendment

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Prepared For:

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1.0 Introduction

FOTENN Consultants Inc. has been retained by Richcraft Group of Companies (Richcraft) to prepare an Integrated Environmental Review Statement (IERS) in support of Draft Plan of Subdivision and Zoning By-law Amendment applications for the lands municipally known as 457 Terry Fox Drive ("the subject lands"). The subject lands, also referred to as the "Kanata Highlands" are located east of Terry Fox Drive and north of Highway 417 in Ottawa's western community of Kanata West. Richcraft are proposing the development of low- to medium-density residential uses, as well as a park, on the subject lands.

1.1 Integrated Environmental Review Statement

Section 4.7.1- *Integrated Environmental Review to Assess Development Applications* of the Official Plan acknowledges that a comprehensive understanding of the relationship between the natural environment and the built environment is the foundation for site design and subdivision planning. Section 4.7.1 contains the following two (2) policies:

> "1. Subdivision, and site plan and rezoning applications requiring an Environmental Impact Statement, Tree Conservation Report or landform feature assessment, will be accompanied by an integrated environmental review statement demonstrating how all the studies in support of the application influence the design of the development with respect to effects on the environment and compliance with the appropriate policies of Section 4. The appropriate policies and studies will be identified through pre-consultation at the beginning of the design and review process. [Amendment #76, OMB File # PL100206, Ministerial Modification # 48, April 26, 2012.]"
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> "2. The integrated environmental review statement will provide:
>
> a. A brief overview of the results of individual technical studies and other relevant environmental background material;
> b. A graphic illustration, such as an air photo, summarizing the spatial features and functions (e.g. natural vegetation, watercourses, significant slopes or landform features, recharge/infiltration areas) as identified in the individual studies;
> c. A summary of the potential environmental concerns raised, the scope of environmental interactions between studies, and the total package of mitigation measures, including any required development conditions and monitoring, as recommended in individual studies;
> d. A statement with respect to how the recommendations of the support studies and the design with nature approach have influenced the design of the development;
> e. An indication that the statement has been reviewed and concurred with by the individual sub consultants involved in the design team and technical studies.

f. A description of how the principles of Design Objective 7 (Section 2.5.1) to maximize the energy-efficiency of development and to promote sustainable design that reduces consumption, energy use and carbon footprint of the built environment have been considered. A sustainable design checklist will be prepared to assist in this description. [Amendment #76, OMB File # PL100206, Ministerial Modification # 49, April 26, 2012.]"

2.0 Description of Subject Lands and Project

2.1 Description of Subject Lands

The subject property, known legally as Part of Lot 8, Concession 1, Geographic Township of March, City of Ottawa, consists of a 25.6 hectare parcel of land bound by the arcing Terry Fox Drive along its western side, the Richardson Ridge Phase 4 lands (Regional Group) to the south, a City-owned park space to the north and the unopened First Line Road Allowance along the eastern edge. Beyond the unopened road allowance is the KNL Phase 7 development. It should be noted that Terry Fox Drive represents the western border of the urban boundary of the City of Ottawa, beyond which lands are also owned by Richcraft.

The site has approximately 755 metres of frontage along Terry Fox Drive, approximately 615 metres of frontage along the adjacent Richardson Ridge subdivision, approximately 610 metres of frontage along an unopened road allowance and future subdivision to the north and approximately 180 metres of frontage along the west property line.

The site is currently vacant and tree covered and is currently being used for passive recreational uses. The surrounding area directly adjacent to the subject site is undeveloped; however, these lands are expected to be developed for residential and local commercial/institutional uses. In general, the surrounding neighbourhood consists of low and medium density residential development. The site is located in close proximity to several parks and other green spaces.

2.2 Description of Project

The proposed Plan of Subdivision would permit the development of 435 residential units fronting on six (6) new local streets with a right-of-way width of 18 metres. The Plan of Subdivision will consist of: 52 three (3) storey back-to-back townhomes; 224 townhouses, and; 159 single dwellings. In addition to residential uses, the proposal includes a 6.5 hectare Open Space area and a Park Block approximately 0.9 hectares in size.

3.0 Summary of Technical Studies

3.1 Functional Servicing Report (DSEL, 2016)

David Schaeffer Engineering Ltd (DSEL) prepared a Functional Servicing Report which identifies the proposed development to be within the City's water distribution Pressure Zone 3W. Water servicing is to be provided through connections to the neighbouring property to the south. An existing 300 mm and proposed 150 mm watermain within Terry Fox Drive will provide a redundant water connection to both developments. Modeling results indicate adequate fire flow and supply is available per the demands established with the City of Ottawa. Based on the modeling results, pressure reducing valves may be required and should be confirmed at the time of construction. Boundary conditions from the servicing report for the south property were used in the analysis and pressures found in this report are to be verified once updated boundary conditions are provided. The proposed water supply design conforms to all relevant City of Ottawa Guidelines and Policies.

Sanitary sewers are designed as per the City of Ottawa Sewer Design Guidelines. There are three proposed sanitary options considered, with the preferred option being construction of a new sanitary pumping station to be located west of Terry Fox Drive. The sanitary pumping station flows will discharge to the Signature Ridge Pump Station via a proposed sanitary forcemain. This proposed servicing concept provides a viable servicing outlet for the Urban Expansion Study Area lands on the west side of TFD.

Storm sewers are designed as per the City of Ottawa guidelines, including the amendment to the guidelines per Technical Bulletin PIEDTB-2016-01. Storm sewers will outlet to one of two storm servicing options. It is recommended that the Kanata Highlands outlet to a new SWM Facility west of TFD, outside the Carp River floodplain. The second option has the Kanata Highlands servicing split between a new SWM Facility west of TFD and two oil and grit separators located on the lands to the south (Richardson Ridge, Phase 4).

The new SWM Facility will be designed to achieve the quality control target of 70% TSS removal (Normal Level of Protection) as well as controlling post-development flows to pre-development conditions. The oil and grit separators to the south are designed to achieve the quality control target of 80% TSS removal (Enhanced Level of Protection) due to the proximity to a Provincially Significant Wetland (PSW).

A Hydraulic Grade Line (HGL) analysis will be completed and underside of footing elevations will be set at a minimum of 0.30 m above the 100-Year HGL elevation during detailed design. The HGL must remain below the underside of building footing during the stress test event (100-year + 20%).

Servicing and grading has been designed as low as possible as the site is subject to a grade raise restriction of 1.5 m. The grading will be reviewed by the geotechnical engineer at the time of detailed design and provide recommendations.

Erosion and sediment control measures will be implemented and maintained throughout construction. The Carp River will be protected from any negative impacts from construction.

Overall, the design has been completed in general conformance with the City of Ottawa Design Guidelines and criteria presented in other background study documents.

3.2 Environmental Impact Statement and Tree Conservation Report (McKinley Environmental Solutions, 2016)

An Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) were prepared as one (1) report by McKinley Environmental Solutions. The EIS and TCR are presented as an integrated submission and are meant to be read together.

The EIS and TCR note that historically portions of the Site were farmed, and currently the Site is occupied by a mixture of Cultural Meadow, Cultural Thicket, a small Deciduous Swamp, and Deciduous Forest. The City of Ottawa Natural Heritage System Overlay (Schedule L3) identifies the forested portion of the Site as part of the Natural Heritage System (City of Ottawa 2014). The majority of the Site is occupied by a mature secondary growth deciduous forest. The 1976 aerial photograph, which is the oldest available for the Site, shows that the configuration of the forested area has remained relatively unchanged for at least 40 years. Portions of the western part of the Site adjacent to Terry Fox Drive were farmed in 1976 and have since been abandoned. These former agricultural areas are presently occupied by recently disturbed Cultural Thicket/Cultural Meadow.

The subdivision will include an approximately 6.5 ha open space block in the northern part of the Site. A 19 m wide open space block will also be retained along the edge of the First Line Road Allowance, in order to provide a wildlife movement corridor. This block will be approximately 0.5 ha in size, so the total open space dedication is approximately 7 ha. The EIS and TCR note that several designated natural habitats exist in the vicinity of the Site. There is a small wetland area at the northern edge of the open space block within the Site, beyond which is Shirley's Brook. These features are located well within the proposed open space block, and are more than 250 m from the proposed development edge. Therefore, no significant negative impacts on the wetland and Shirley's Brook are anticipated. There is a small channel in the western part of the Site which flows into a stormwater easement and culvert under Terry Fox Drive. This stormwater easement and culvert were established as a temporary measure during the construction of Terry Fox Drive, and were to be retained only until development of the area east of Terry Fox Drive was complete. Following subdivision development, the culvert will no longer be required for either wildlife movement or for conveyance of surface drainage. As such, the stormwater easement is scheduled to be transferred for development prior to registration. The channel is not considered a significant aquatic habitat feature, and so transfer and development of the stormwater easement is not expected to result in a significant negative environmental impact. The Mississippi Valley Conservation Authority (MVCA) has requested completion of a follow-up Headwaters Drainage Assessment to provide further information and assessment of the channel. This study will be completed in spring of 2017.

The majority of the Site is currently forested. The proposed extent of tree retention is anticipated to preserve the significant features and functions of the woodlot. The

arrangement of the open space blocks will ensure that a portion of the interior forest habitat within the Site is protected, and the critical buffer areas around adjacent features (e.g. Shirley's Brook and the Deciduous Swamp in the northern part of the Site) will also be preserved (as noted above). The major linkage function of the Site will be maintained by the arrangement of retained blocks along the First Line Road Allowance, which will provide a connection to adjacent natural areas that are designated for retention within open space blocks surrounding the Richardson Ridge Phase 4 and KNL Phase 7 developments. In addition, the passive recreational functions currently provided by the woodlot will continue to be provided by the 7 ha of retained open space areas, which will be transferred to the City of Ottawa following development. It is therefore anticipated that the currently proposed 7 ha of open space dedication will be sufficient to preserve the significant features and functions of the woodlot.

Several Species at Risk (SAR) are known to occur in the vicinity of the Site. Portions of the Site meet the definition of Category 3 Blanding's Turtle (threatened) habitat due to the Site's proximity to wetland areas (located on adjacent properties). However, it should be noted that the four year radio telemetry study completed in the area by Dillon Consulting did not document any occurrences of Blanding's Turtle within the Site, and there are no known areas of Category 1 or 2 Blanding's Turtle habitat within Kanata Highlands Phase 1. Several Butternut Trees (endangered) were also noted within the Site, and a follow-up Butternut Health Assessment (BHA) is scheduled to be completed in May 2017. Following completion of the BHA, the proponent will contact the OMNRF to discuss potential impacts to Blanding's Turtle and Butternut Trees, in order to determine whether an authorization for the development is required under the Ontario Endangered Species Act (ESA). Requirements for these species will be fulfilled in compliance with the rules and regulations of the ESA. Mitigation measures have been proposed to avoid impacts to the individuals of these species.

Wood Thrush and Eastern Wood Pewee, which are both species of special concern, were observed within the forested area of the Site. The habitat of these species is not regulated under the ESA, although mitigation measures have been proposed to avoid impacts to the individuals of these species. As noted above, the proposed 7 ha of open space dedication is anticipated to preserve the significant features and functions of the woodlot, including a sufficient portion of the forested habitat so that Eastern Wood Pewee and Wood Thrush are likely to continue to be found in the area following development. No other SAR were noted in the vicinity of the Site.

The Kizell Provincially Significant Wetland (KPSW) is located south and southeast of the Site, however, the entirety of the Site is beyond the 120 m regulated area around the wetland. The South March Highlands Provincially Significant Wetland (SMHPSW) and the associated South March Highlands Candidate Life Science Area of Scientific and Natural Interest (ANSI) are located northwest of the Site. However, the SMHPSW and the associated ANSI are entirely separated from the Site by Terry Fox Drive, and there is no direct connectivity to these areas as a result of the road. Therefore, the Kanata Highlands Phase

1 Site is sufficiently separated from the KPSW and SMHPSW so that the development is unlikely to directly impact either designated area.

Pending that the mitigation and avoidance measures outlined in this report are implemented appropriately, the proposed development is not anticipated to have a significant negative effect on the natural features and functions.

3.3 Geotechnical Investigation (Paterson, 2013)

Paterson Group prepared a Geotechnical Investigation for the subject lands. The objectives of the Geotechnical Investigation were to: determine the subsoil and groundwater conditions at the site by means of test holes, and to provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect its design.

The report contains Paterson's findings and includes geotechnical recommendations pertaining to the design and construction of the subject development. The recommendations include:

- Review detailed grading plan(s) from a geotechnical perspective.
- Observation of all bearing surfaces prior to the placement of concrete.
- Periodic observation of the condition of unsupported excavation side slopes in excess of 3 m in height, if applicable.
- Observation of all subgrades prior to placing backfilling materials.
- Field density tests to ensure that the specified level of compaction has been achieved.
- Sampling and testing of the bituminous concrete including mix design reviews.
- Suggest foundation alternatives based on the potential long term settlements.

From a geotechnical perspective, the subject site is adequate for the proposed development. It is expected that the proposed buildings will be founded by conventional style footings placed over in situ soils, bedrock surface and/or engineered fill. It is expected that bedrock removal will be required in areas across the site for building construction and service installation.

A permissible grade raise restriction is required where the silty clay deposit is present below the proposed buildings. If higher grade raises are required, preloading with or without a surcharge, lightweight fill and/or other measures should be investigated to reduce the risks of unacceptable long term post construction total and differential settlements.

3.4 Phase 1 Environmental Site Assessment (Paterson, 2013)

Paterson Group prepared a Phase 1 Environmental Site Assessment (ESA) for the subject lands. The purpose of the Phase I Environmental Site Assessment was to research the past and current uses of the site and adjacent lands in order to identify activities which may have impacted the soil and groundwater quality beneath the property. Based on the historical

review, the subject property has been either vacant or agricultural land with occasional farmsteads since 1945, although the land has not been used for agriculture for some time. Adjacent properties have also been vacant, or used for agricultural and/or residential purposes since 1945. No concerns were identified with respect to the historical use of the subject site or adjacent lands.

Following the historical review, a site visit was conducted. The site was vacant and unutilized. The site is generally covered in rocky outcrops and larger trees. Adjacent and neighbouring properties consisted mainly of vacant treed land or residential properties. No concerns were observed during the site visit.

A subsurface investigation was carried out on the land in 2006 for geotechnical purposes. No signs of contaminants or deleterious fill material were observed during the drilling program. Based on the results of the Phase I ESA, a Phase II ESA was not required.

Based on the results of the Phase I - ESA, it is Paterson's opinion that a Phase II - Environmental Site Assessment is not required for the subject lands at this time.

3.5 Traffic Noise Assessment (Gradient Wind Engineering Inc., 2016)

Gradient Wind Engineering Inc. (GWE) prepared a Roadway Traffic Noise Feasibility Assessment (2016) for the subject lands. GWE's scope of work involved assessing exterior noise levels throughout the site, generated by local roadway traffic. This document describes a roadway traffic noise feasibility assessment performed for a proposed residential subdivision. The major source of noise affecting the development is roadway traffic along Terry Fox Drive located west of the development.

The assessment is based on: (i) theoretical noise prediction methods that conform to the Ministry of the Environment and Climate Change (MOECC) and City of Ottawa requirements; (ii) noise level criteria as specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG); (iii) future vehicular traffic volumes based on the City of Ottawa's Official Plan roadway classifications; and (iv) drawings received from Annis O'Sullivan Vollebekk Ltd.

As the draft plan has been prepared for rezoning application, GWE took the approach to identify potential worst-case key locations which could serve as outdoor living areas for townhomes and single family homes. An example would be the townhome blocks closest and most exposed to Terry Fox Drive. The grading along Terry Fox Drive is expected to have a gently rising slope; therefore the site was treated as such. The results of the current study indicate that noise levels due to roadway traffic over the site will range between approximately 45 and 65 dBA during the daytime period (07:00-23:00). The highest roadway traffic noise levels will occur on the west side of the development closest to Terry Fox Drive. Therefore, based on the City of Ottawa noise criteria, noise control measures are anticipated. The City of Ottawa preferences for noise control prescribe the following hierarchy:

(i) increased distance setback with absorptive ground cover (vegetation),

(ii) relocation of noise sensitive areas away from roadways,
(iii) earth berms, and as a last resort,
(iv) acoustic barriers.

As this is a feasibility study, future detailed noise studies would be performed to determine appropriate Sound Transmission Class (STC) ratings for exterior windows and walls, as well as noise barrier heights and locations.

3.6 Archaeological Assessment (The Archaeologists, 2012)

A Stage 1 background study of the subject property was conducted to provide information about the property's geography, history, previous archaeological fieldwork and current land condition in order to evaluate and document in detail the property's archaeological potential and to recommend appropriate strategies for Stage 2 survey.

A Stage 2 property assessment was conducted to document all archaeological resources on the property, to determine whether the property contains archaeological resources requiring further assessment, and to recommend next steps. The characteristics of the property dictated that the Stage 2 survey be conducted by test pit survey.

The Stage 1 background study found that the subject property exhibits potential for the recovery of archaeological resources of cultural heritage value and concluded that the property requires a Stage 2 assessment. The Stage 2 property assessment, which consisted of a systematic test pit survey, did not result in the identification of archaeological resources.

The Stage 1 background study concluded that the property exhibits archaeological potential. The Stage 2 property assessment did not identify any archaeological resources within the subject property. The report recommends that no further archaeological assessment of the property is required.

3.7 Transportation Impact Study (Parsons, 2017)

Parsons prepared a Transportation Impact Study (TIS) (January 2017) in support of the proposed development. Given the proposed subdivision is at the current edge of urban development, and as Terry Fox Drive has significant capacity at its existing two lanes (planned for four ultimately), the following scope of work was agreed upon by the City's Traffic department:

- A TIS is required but a screenline analysis and the study area collision analysis is not required; and,
- The primary focus should be on local issues including: current Terry Fox Drive peak hour volumes, site intersection spacing and requirements, internal street layout and pedestrian and bicycle connectivity.

The findings, conclusions and recommendations of the analysis are:

- Richcraft's proposed 435 unit residential development is projected to generate a two-way total of 185 veh/h and 230 veh/h during the morning and afternoon peak hours respectively.
- The two proposed site connections to Terry Fox Drive are sufficient to accommodate projected site-generated traffic.
- Given the southern site intersection will be shared with the Richardson Ridge subdivision to the south, it is recommended to be signalized.
- Internal to the subdivision, the combination of road rights-of-way, throat lengths on the Terry Fox Drive connections, intersection locations and pathway connections are all considered acceptable.
- The projected transit ridership of 60 to 80 transit riders per hour can be adequately accommodated by planned transit service on Terry Fox Drive.
- For the horizon year of this analysis, traffic signal control is warranted at the site's southern intersection assuming a posted speed limit of 70 km/h or more. Depending on the future adjacent developments, northern access may eventually warrant signalization.
- Turn lane requirements at the site connections to Terry Fox Drive are initially as follows.
  North Site Access:
  o WB left-turn lane storage = 15 m
  o SB left-turn lane storage = 15 m
  South Site Access:
  o NB right-turn lane storage = 30 m
  o SB left-turn lane storage = 25 m
  o WB left-turn lane storage = 45 m
- Based on a continuous growth rate along both March Road and Terry Fox Drive for the next 9 years, some of the critical movements at study area intersections are projected to operate at capacity (LoS 'E'). If this growth rate continues, the widening of Terry Fox Drive will likely be required before 2031. If/when Terry Fox Drive is widened to four-lanes, the northern site access will likely be converted into a right-in/right-out access or may warrant signalization.

Based on the findings and recommendation, the proposed Plan of Subdivision is recommended from a transportation perspective.

4.0 Potential Concerns, Mitigation Measures, and Implementation

The following table outlines the mitigation measures contained within the technical studies summarized in Section 3.0 of this Integrated Environmental Review Statement.

Potential Environmental Concern	Proposed Mitigation Measures
Water Servicing	o Boundary conditions from the servicing report for the south property were used in this analysis and pressures found in the report are to be verified once boundary conditions are provided. o The proposed water supply design conforms to all relevant City of Ottawa Guidelines and Policies.
Sanitary Servicing	o Three proposed sanitary options are considered, with the preferred option being construction of a new sanitary pumping station to be located west of Terry Fox Drive, allowing flows to discharge to the Signature Ridge Pump Station via a proposed sanitary forcemain.
Stormwater Management	o The report recommends that the Kanata Highlands outlet to a new SWM Facility west of Terry fox Drive, outside the Carp River floodplain. o A second option has the KHL servicing split between a new SWM Facility west of Terry Fox Drive and two oil and grit separators located on the lands to the south (Richardson Ridge, Phase 4).
Servicing and Grading + Geotechnical	o Both Servicing and grading have been designed as low as possible as the site is subject to a grade raise restriction of 1.5 metres. The grading will be reviewed by the geotechnical engineer at the time of detailed design and provide any further recommendations.
Erosion and Sediment Control	o Mitigation measures will be implemented and maintained throughout construction. The Carp River will be protected from any negative impacts from construction.
Environmental	o Several designated natural habitats exist within the Site and in the vicinity of the Site. o There is a small wetland are at the northern edge of the open space block within the site. No significant negative impacts on the wetlands and Shirley's Brook are anticipated. o There is a small channel in the western part of the site which flows into a stormwater easement and culvert under Terry Fox Drive. The culvert will no longer be required for either wildlife movement or for conveyance of surface drainage. o The Mississippi Valley Conservation Authority (MVCA) has requested completion of a follow-up Headwaters Drainage Assessment to provide further information and assessment of the channel. This study will be completed in spring of 2017.

Potential Environmental Concern	Proposed Mitigation Measures
Environmental – Tree Conservation	o The proposed extent of tree retention is anticipated to preserve the significant features and functions of the woodlot. The arrangement of the open space blocks will ensure that a portion of the interior forest habitat within the site is protected and the critical buffer areas around adjacent features (Shirley's Brook and the wetland in the northern part of the site) will also be preserved. o The major linkage function of the site will be maintained by the arrangement of retained blocks along the First Line Road Allowance, which will provide a connection to adjacent natural areas that are designated for retention within open space blocks surrounding the Richardson Ridge Phase 4 and KNL Phase 7 developments. o In addition, the passive recreational functions currently provided by the woodlot will continue to be provided by the 7 ha of retained open space areas, which will be transferred to the City of Ottawa following development. o It is therefore anticipated that the currently proposed 7 ha of open space dedication will be sufficient to preserve the significant features and functions of the woodlot. o Detailed mitigation measures to protect adjacent natural features and retained trees during tree clearing are discussed in Section 4.0 of the TCR.
Environmental – Wildlife Impacts	o Detailed mitigation measures to address potential impacts to wildlife and Species at Risk during tree clearing and construction are summarized in Section 4.4 of the EIS. Proposed mitigation conforms to the recommendations of the City of Ottawa *Protocol for Wildlife Protection During Construction*.
Environmental – Species at Risk	o Portions of the Site meet the definition of Category 3 Blanding's Turtle (threatened) habitat due to the Site's proximity to wetland areas (located on adjacent properties). o There are no known areas of Category 1 or 2 Blanding's Turtle habitat within the Kanata Highlands Phase 1 Site o Several Butternut Trees were also noted within the Site and a follow up Butternut Health Assessment is scheduled to be completed in May 2017. o Following completion of the BHA, the proponent will contact the OMNRF to discuss potential impacts to Blanding's Turtle and Butternut Trees, in order to determine whether an authorization for the development is required under the Ontario Endangered Species Act (ESA). Requirements for

Potential Environmental Concern	Proposed Mitigation Measures
	these species will be fulfilled in compliance with the rules and regulations of the ESA. o The EIS notes that a permanent Blanding's Turtle exclusion system (fencing) may be required in order to meet regulatory requirements under the Endangered Species Act (ESA) and in order to permanently prevent Blanding's Turtles (and other wildlife) from entering the future development. Fencing requirements will be discussed and confirmed in consultation with the OMNRF through the ESA review and authorization process. o Mitigation measures have been proposed to avoid impacts to the individual of these species. o Wood Thrush and Eastern Wood Pewee, which are both species of special concern, were observed within the forested area of the site and mitigation measures have been proposed to avoid impacts to individuals of these species. o The proposed 7 ha of open space is anticipated to preserve the significant features and function of the woodlot, including a sufficient portion of the forested habitat so that Eastern Wood Pewee and Wood Thrush are likely to continue to be found in the area post-development.
Geotechnical	o The report includes geotechnical recommendations, including the review of detailed grading plans o Prior to placement of concrete, observe all bearing surfaces o Prior to placing backfilling materials, observe all subgrades o Sampling and testing of the bituminous concrete including mix design reviews o Suggest foundation alternatives based on the potential long term settlements o It is expected that the proposed buildings will be founded by conventional style footings placed over in situ soils, bedrock surface and/or engineering fill. It is expected that bedrock removal will be required in areas across the site for building construction and service installation.
Environmental Site Assessment	o No concerns were identified with respect to the historical use of the property o No concerns were observed during the site visit o Based on the Phase 1 ESA, a Phase 2 ESA is not required.
Archaeological	o The Stage 1 found that the site exhibits potential for the recovery of archaeological resources of cultural heritage value

Potential Environmental Concern	Proposed Mitigation Measures
	and concluded that the property requires a Stage 2 assessment. o The Stage 2 property assessment, which consisted of a systematic test pit survey, did not result in the identification of archaeological resources.
Traffic Noise Assessment	o The results of the current study indicate that noise levels due to roadway traffic over the site will range between approximately 45 and 65 dBA during the daytime period (07:00-23:00). o The highest roadway traffic noise levels will occur on the west side of the development closest to Terry Fox Drive. o The City of Ottawa preferences for noise control prescribe the following hierarchy: (i) increased distance setback with absorptive ground cover (vegetation), (ii) relocation of noise sensitive areas away from roadways, (iii) earth berms, and as a last resort, (iv) acoustic barriers. o Given this is a feasibility study, future detailed noise studies would be performed to determine appropriate Sound Transmission Class (STC) ratings for exterior windows and walls, as well as noise barrier heights and locations.

5.0 Design with Nature Principles and Subdivision Design

Section 8- *Glossary* of the Official Plan (2003) defines "Design with Nature" as:

> "An approach that utilizes natural methods during site design to work with the terrestrial, aquatic, and biological characteristics of the site and the relationship between them. These measures may serve to reduce the reliance on technological solutions, which may be expensive, energy- or management-intensive, and less environmentally sensitive. This may include:

- Retention of natural vegetation on slopes to reduce erosion;
- Conservation of as many existing trees as feasible;
- Use of appropriate natural infiltration techniques on site to reduce the need for stormwater management ponds;

- Orientation of streets to maximise opportunities for passive solar heating and reflection of natural contours;

- Protection of natural stream corridors and incorporation of natural features into open spaces."

The residential development proposed on the subject lands meets the above noted measures as follows:

EROSION

- The storm flows will be treated for quality control, quantity control and erosion control.
- Erosion and sediment controls will be implemented during construction. The following recommendations to the contractor will be included in contract documents:

  - Limit extent of exposed soils at any given time;
  - Re-vegetate exposed areas as soon as possible;
  - Minimize the area to be cleared and grubbed;
  - Protect exposed slopes with plastic or synthetic mulches;
  - Install silt fence to prevent sediment from entering existing ditches;
  - No refueling or cleaning of equipment near existing watercourses;
  - Provide sediment traps and basins during dewatering;
  - Install filter cloth between catch basins and frames;
  - Installation of mud mats at construction accesses; and
  - Plan construction at proper time to avoid flooding.

The EIS/TCR notes the erosion and sediment control plan to include the following:

- Groundwater in trenches (if present) will be pumped into a filter mechanism, such as a trap made up of geotextile filters and straw, prior to release to the environment;
- Bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewer (e.g. along Terry Fox Drive). These bulkheads will trap any sediment carrying flows, thus preventing any construction-related contamination of existing sewers;
- Seepage barriers will be constructed in any temporary drainage ditches;
- Construction vehicles will leave the site at designated locations. Exits will consist of a bed of granular material, in order to minimize the tracking of mud off-site;
- Any stockpiled material will be properly managed to prevent these materials from entering the sewer systems. Any stockpiles must be surrounded by toed in silt fencing to prevent runoff; and
- Until rear yards are sodded or until streets are asphalted and curbed, all catch basins and manholes will be constructed with a geotextile filter fabric located between the structure frame and cover.

In addition, toed in silt fencing will be installed around the development perimeter as temporary wildlife exclusion fencing. This silt fencing will also help to mitigate sediment and erosion impacts, as it will separate the development from surrounding retained habitat areas.

TREE CONSERVATION

The EIS and TCR identify approximately 7 ha of retained open space blocks, all of which are forested. Detailed mitigation measures to protect adjacent natural features and retained trees during tree clearing are discussed in Section 4.0 of the TCR.

NATURAL INFILTRATION

Lot level and conveyance stormwater Best Management Practices should be examined as part of detailed design and implemented where possible within the subdivision to promote infiltration throughout the site. The following Low Impact Development techniques should be considered for implementation as part of detailed design:

- Rear-yard swales should be designed with minimum grades where possible, to promote infiltration;
- Rear-yard catchbasin leads should be perforated (except for the last segment connecting to the storm sewer within the right-of-way), to promote infiltration;
- Where eavestroughs are provided on residential units, they are to be directed to landscaped surfaces, to promote infiltration.

Furthermore, the following techniques can be examined as part of detailed landscaping design of the park block:

- Amended topsoil (minimum 300 mm thick) can be considered for use; and,
- Micro-grading can be considered to promote infiltration.

As detailed designs progress, a detailed site-specific water budget is to be undertaken to characterize pre-development and post-development infiltration for the subject lands.

The implementation of the other LID techniques described above, for implementation or consideration in detailed design, will not further affect the arrangement of land uses provided in the Draft Plan of Subdivision

STREET ORIENTATION

Both Section 4.9- *Energy Conservation Through Design* of the Official Plan and Guideline 14 of the City of Ottawa's *Urban Design Guidelines for Greenfield Neighbourhoods* (2007) encourage a road layout that allows for south-facing buildings and windows to reduce summer thermal gain and maximize opportunities for passive energy conservation. The

proposed grid street pattern, which includes a number of roads oriented in an east-west direction, allows for south-facing buildings and windows.

ENVIRONMENTAL PROTECTION

The EIS and TCR identify areas to be retained as open space areas. This includes a large approximately 6.5 ha block of forested habitat that is to be preserved in the northern part of the Site, as well as a 19 m wide open space block along the edge of the First Line Road Allowance. The retained block along the First Line Road Allowance will be approximately 0.5 ha in size, and so the total open space dedication is approximately 7 ha. The proposed extent of tree retention is anticipated to preserve the significant features and functions of the woodlot. The arrangement of the open space blocks will ensure that a portion of the interior forest habitat within the Site is protected, and the critical buffer areas around adjacent features (e.g. Shirley's Brook and the Deciduous Swamp in the northern part of the Site) will also be preserved (as noted above). The major linkage function of the Site will be maintained by the arrangement of retained blocks along the First Line Road Allowance, which will provide a connection to adjacent natural areas that are designated for retention within open space blocks surrounding the Richardson Ridge Phase 4 and KNL Phase 7 developments. In addition, the passive recreational functions currently provided by the woodlot will continue to be provided by the 7 ha of retained open space areas, which will be transferred to the City of Ottawa following development. It is therefore anticipated that the currently proposed 7 ha of open space dedication will be sufficient to preserve the significant features and functions of the woodlot.

6.0 Energy Efficiency and Sustainable Design

Section 2.5.1- *Urban Design and Compatibility* of the Official Plan sets out design objectives and principles for new development within the City of Ottawa. The design objectives are qualitative statements of how the City wants to influence the built environment as the city matures and evolves. They are broadly stated, and are applied throughout all land use designations. The Design Principles are more specific, further describing how the City hopes to achieve each of the objectives.

As per Section 4.7.1 – *Integrated Environmental Review to Assess Development Applications* of the Official Plan, an Integrated Environmental Review Statement is required to consider Objective 7 of Section 2.5.1 and the associated principles. Objective 7 and its associated principles state:

> *Objective 7*
> "To maximize energy-efficiency and promote sustainable design to reduce the resource consumption, energy use, and carbon footprint of the built environment."
>
> *Principles*
> "Design should:

- Orient development to maximize opportunities for passive solar gain, natural ventilation, and use energy efficient development forms and building measures.
- Consider use of renewable energy and alternative energy systems.
- Maximize opportunities for sustainable transportation modes (walking, cycling, transit facilities and connections).
- Reduce hard surfaces and maximize landscaping and site permeability on site.
- Consider use of innovative green spaces such as green roofs, and measures that will reduce the urban heat island effect.
- Maximize re-use and recycling of resources and materials.
- Utilize green building technologies and rating systems such as Leadership in Energy and Environmental Design (LEED).
- Utilize advanced water conservation and efficiency measures."

The proposed development includes efficient and sustainable design principles as follows:

- As noted in Section 5.0 of this Integrated Environmental Review Statement (IERS), the east-west orientation of multiple roads in the proposed Plan of Subdivision allows for south-facing buildings and windows.

- The Draft Plan of Subdivision, prepared by Annis, O'Sullivan, Vollebekk in support of the proposed development identifies mid-block pedestrian connections to the large open space area to the north and the linear open space abutting the adjacent subdivision. These connections allow for future residents to walk between the subject lands, abutting subdivisions as well as parkland uses. As the subdivision design is further refined, the Draft Plan will identify areas proposed to include sidewalks.

  As discussed in the Community Transportation Study (Parsons, 2016), modern design standards should be implemented at signalized intersections in order to accommodate pedestrians and cyclists effectively (i.e. cycle tracks and full protected intersections).

  As encouraged in the City's *Urban Design Guidelines for Greenfield Neighbourhoods* (2007), the proposed local street pattern contains short street block lengths. This will enhance pedestrian access to transit stops and to other neighbourhood amenities and facilities, such as schools, parks, and commercial areas.

- Although the urbanization of the site will reduce the amount of stormwater that infiltrates into the subject lands, the implementation of some or all of the Low Impact Development (LID) techniques will assist in minimizing impacts to the groundwater system from urbanization of the watershed. Some of the LID techniques to be considered for implementation during detailed design are:

- Rear-yard swales should be designed with minimum grades where possible, to promote infiltration;
- Rear-yard catchbasin leads should be perforated (except for the last segment connecting to the storm sewer within the right-of-way), to promote infiltration;
- Where eavestroughs are provided on residential units, they are to be directed to landscaped surfaces, to promote infiltration;
- Amended topsoil (minimum 300 mm thick) can be considered for use in the park block; and
- Micro-grading can be considered in the park to promote infiltration.

7.0 Concurrence of Study Team

The study team members, comprised of Richcraft Group of Companies and the individual sub-consultants responsible for preparing the reports discussed herein, will review this draft Integrated Environmental Review Statement and will provide written concurrence with its contents (Appendix B).

8.0 Conclusion

This draft Integrated Environmental Review Statement (IERS) outlines how the requirements in Section 4.7.1- *Integrated Environmental Review* of the Official Plan will be addressed. It is expected that this IERS will be finalized at the conclusion of the planning application process, once any comments/concerns from City Staff and other review agencies have been satisfactorily addressed, including any revisions to the application submission material.

Sincerely,

Matthew McElligott, MCIP, RPP
Senior Planner
FOTENN Consultants Inc.

FOTENN

APPENDIX A:

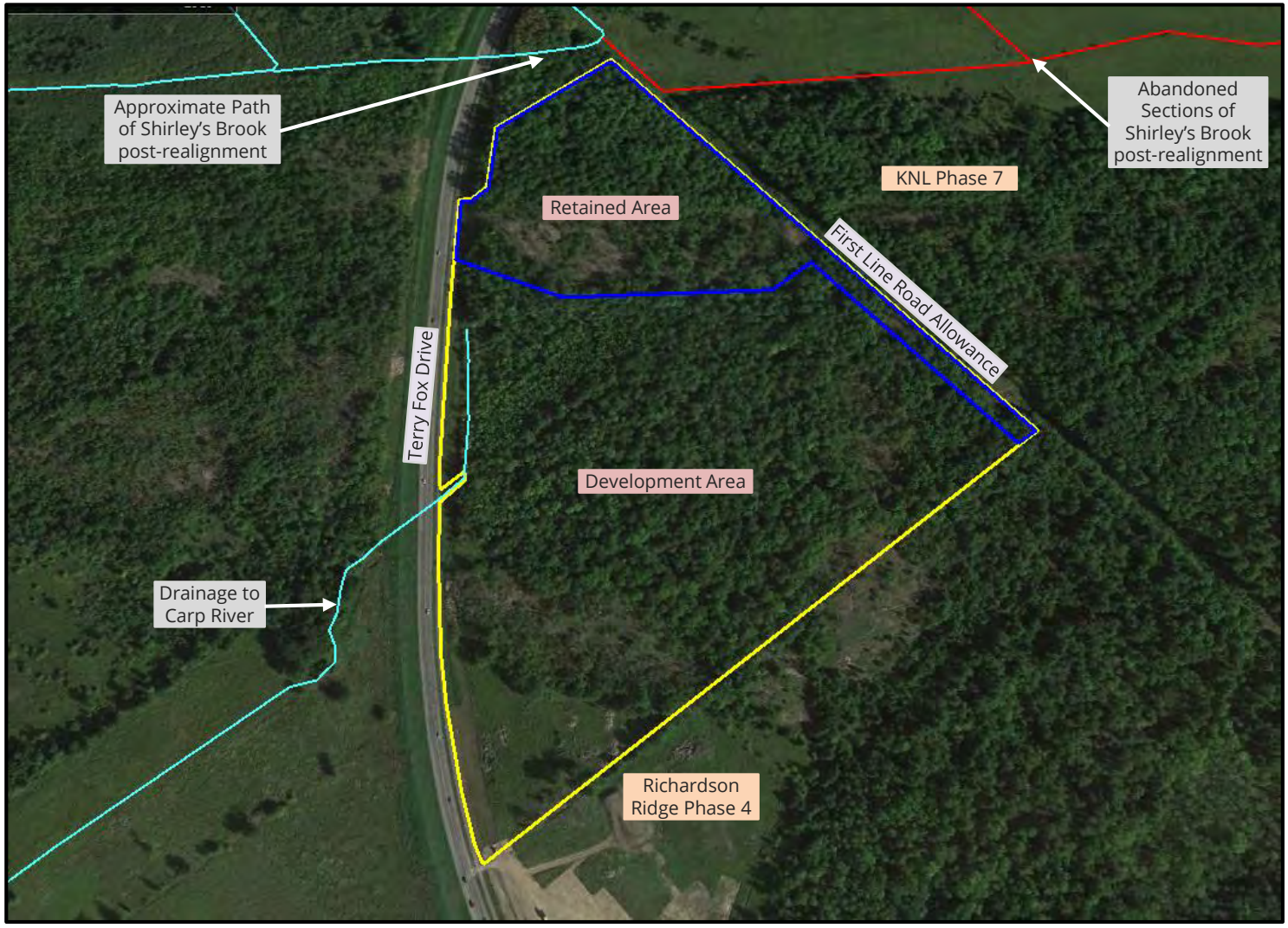
ENVIRONMENTAL FEATURES

McKINLEY ENVIRONMENTAL SOLUTIONS

December 2016

FIGURE 1: SITE OVERVIEW

Kanata Highlands Phase 1, Ottawa, Ontario
Detailed Environmental Impact Statement (EIS)



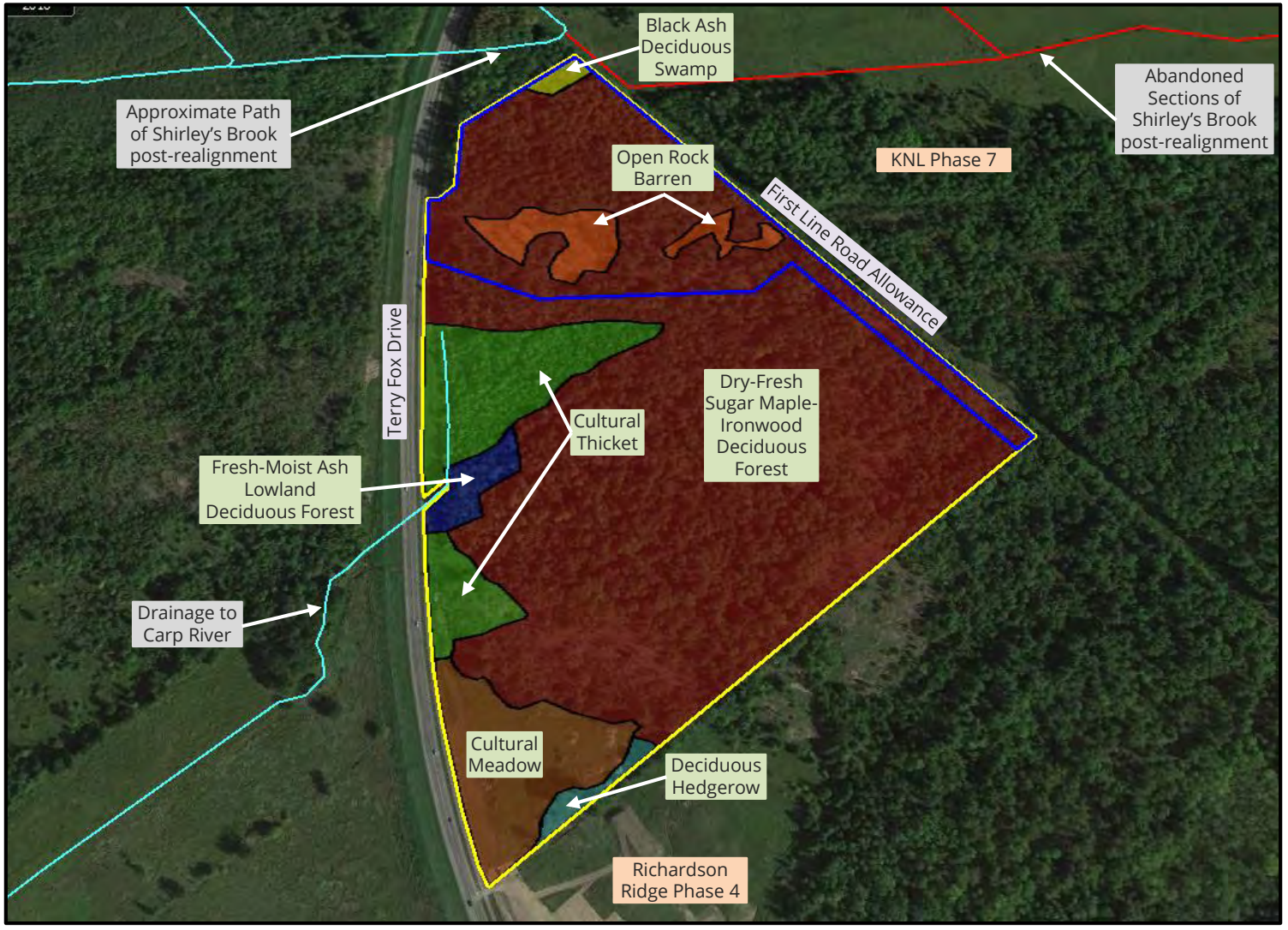
Please Note: This is not a legal land survey. All dimensions and locations are shown as approximate.

McKINLEY ENVIRONMENTAL SOLUTIONS

December 2016

FIGURE 2: VEGETATION COMMUNITIES

Kanata Highlands Phase 1, Ottawa, Ontario
Detailed Environmental Impact Statement (EIS)



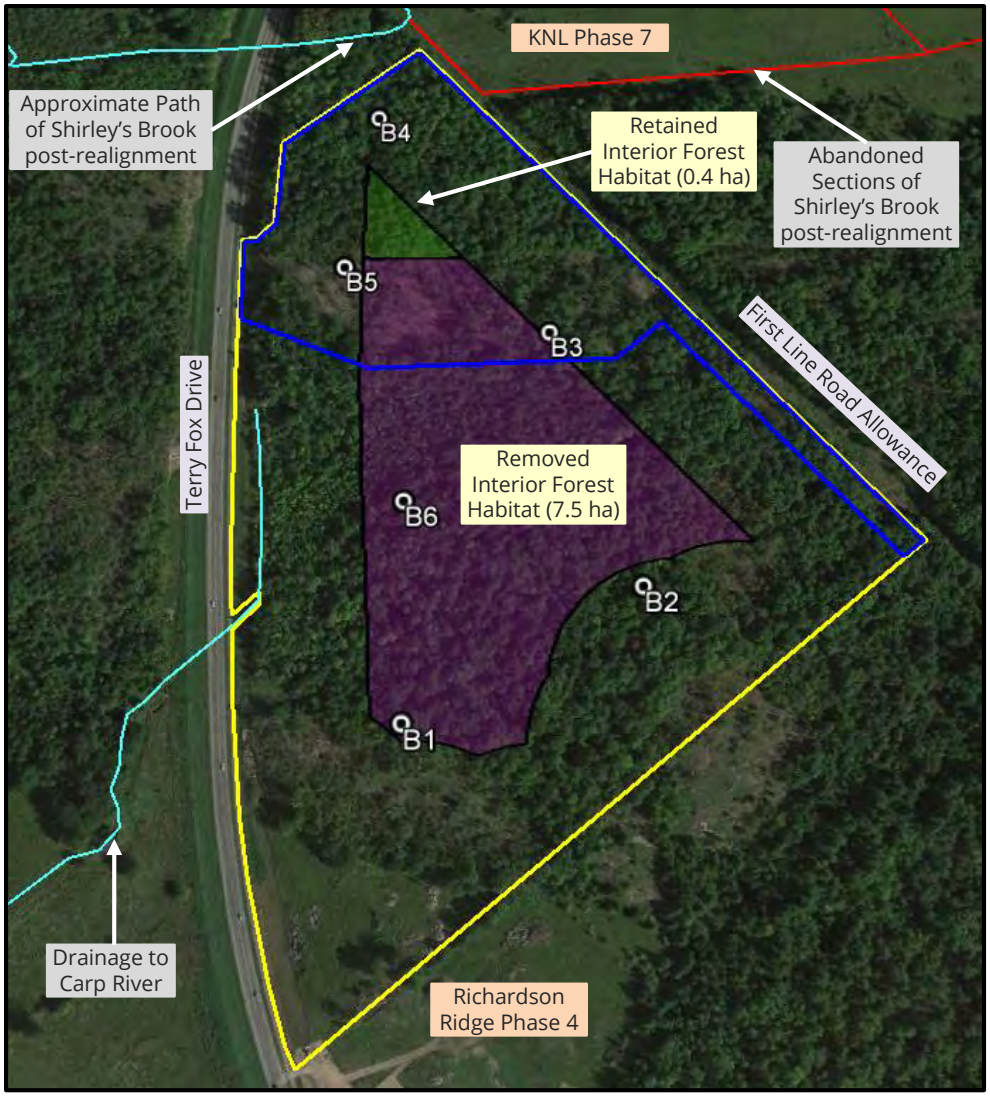
Please Note: This is not a legal land survey. All dimensions and locations are shown as approximate.

FIGURE 3: BIRD SURVEY POINTS & INTERIOR FOREST HABITAT

McKINLEY ENVIRONMENTAL SOLUTIONS

Kanata Highlands Phase 1, Ottawa, Ontario
Detailed Environmental Impact Statement (EIS)

December 2016



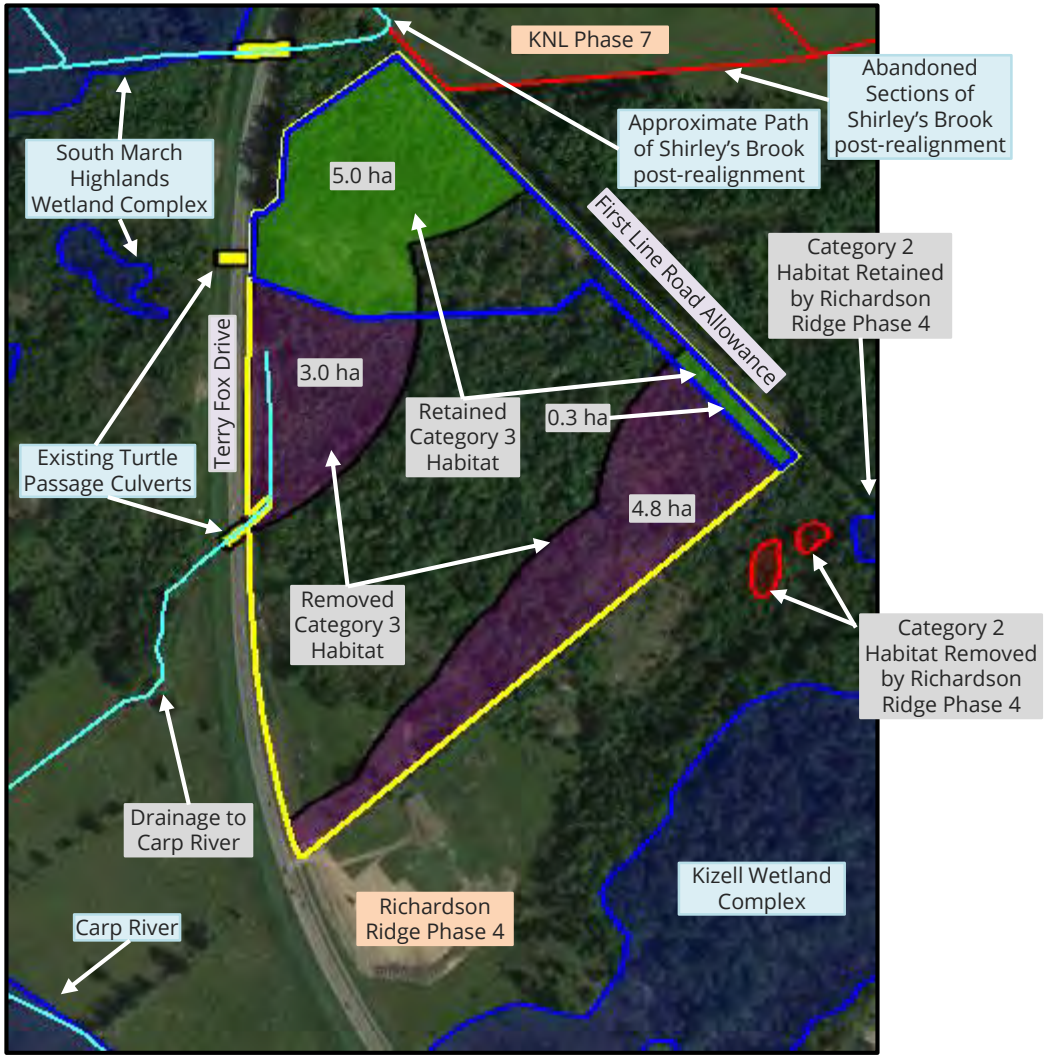
- Property Boundary
- Watercourses
B2 - Bird Survey Points

Please Note: This is not a legal land survey. All dimensions and locations are shown as approximate.

McKINLEY ENVIRONMENTAL SOLUTIONS

FIGURE 4: BLANDING'S HABITAT MAPPING

Kanata Highlands Phase 1, Ottawa, Ontario
Detailed Environmental Impact Statement (EIS)



Please Note: This is not a legal land survey. All dimensions and locations are shown as approximate.
Please Note: Category 3 Blanding's Turtle Habitat Mapping has been completed based on the anticipated post-development habitat retained with KNL Phase 7 and Richardson Ridge, as permits for habitat removal in those areas are currently in process.

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APPENDIX B:

CONCURRENCE OF STUDY TEAM

1. David Schaeffer Engineering Limited (DSEL)

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with DSEL's **Functional Servicing Report (December 2016)** and concur with the related content and recommendations.

Name: _____

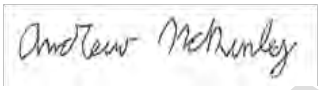
Signature: _____

Date: _____

2. McKinley Environmental Solutions

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with McKinley's **Environmental Impact Statement and Tree Conservation Report (December 2016)** and concur with the related content and recommendations.

Name: Andrew McKinley, Senior Biologist

Signature: 

Date: February 2nd, 2017

3. Paterson Group

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with Paterson's **Geotechnical Investigation (2013)** and **Phase 1 Environmental Site Assessment (2013)** and concur with the related content and recommendations.

Name: _____

Signature: _____

Date: _____

4. Parsons

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with Parson's **Transportation Impact Statement (January 2017)** and concur with the related content and recommendations.

Name: _____

Signature: _____

Date: _____

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5. Gradient Wind Engineering Inc.

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with **Gradient Wind's Roadway Traffic Noise Feasibility Assessment (2016)** and concur with the related content and recommendations.

Name: Joshua Foster

Signature: 

Date: February 9, 2017

6. The Archaeologists

I have reviewed the sections of this Integrated Environmental Review Statement that are associated with **Archaeological Assessment (February 2012)** and concur with the related content and recommendations.

Name: _____

Signature: _____

Date: _____