NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

March 3, 2025 #2520

Peter Degroot
Sunvest Development Corp.
901 Victoria Street North
Kitchener, ON N2B 3C3

Dear Mr. Degroot,

RE: 720 Erbsville Road, Waterloo
Environmental Impact Study Addendum

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Sunvest Development Corp. (the landowner) to complete an Environmental Impact Study (EIS) associated with the proposed residential development at 720 Erbsville Road, Waterloo (the 'subject property'). An EIS for this proposed development was first submitted on December 15, 2021. In response to agency comments, an updated EIS was provided on January 23, 2024, which also incorporated updated stormwater management plans, revised parking areas and number of units, and a revised development limit. The updated EIS also included additional field data collected in 2023. Comments by the City of Waterloo, Region of Waterloo, and Grand River Conservation Authority (GRCA) on the second EIS submission were received in May 2024. This EIS addendum provides an updated impact assessment that integrates revised stormwater management plans and development limits to address the comments from the second submission. Full responses to agency comments are provided in Appendix I.

2.0 Updated Impact Assessment

To address agency comments, some modifications have been made to the stormwater approach and concept plan layout. Specifically, the proposed development now only includes one stormwater management facility (SWMF) block (previously identified as SWMF Block 'B') and additional swales have been identified to increase infiltration within the development area. The SWMF, which will be a dry pond, is now proposed to have an outlet pipe that will cross the woodland and wetland between the development area and Laurel Creek, to allow for direct discharge into the creek (JPE 2025). A footprint for the proposed trail has now also been identified (JPE 2025) in order to assess potential impacts to natural heritage features in the vicinity. A park block is now proposed where the northern SWMF was previously identified (previously SWMF Block 'A').

The proposed development mapping from the 2024 EIS has been revised to reflect these changes, and other changes as required to address agency comments related to density, parking, yard setbacks, and design elements; this revised map is included with this addendum (Map 6). There are no other changes to the proposed development plans that influence the conclusions of the EIS. At this stage, a conceptual design has been identified and it is understood that at the detailed design stage, the impact assessment would have to be updated. The following sections outline the potential direct and indirect impacts and proposed mitigation

measures associated with the modifications to the plans and provide additional information to address agency comments. No changes to the induced impacts section of the revised EIS (NRSI 2024) are required based on the updated development plans.

2.1 Proposed Development

2.1.1 Stormwater Management Approach

As shown on Map 6, the proposed southeastern SWMF block will have an outlet pipe that discharges directly to Laurel Creek, conveying controlled flow up to the 100-year storm (JPE 2025). Storms that exceed the 100-year event will spill from the SWMF via a weir into the adjacent buffer lands, eventually discharging to Laurel Creek (JPE 2025). The outlet pipe is to be installed trenchlessly through the woodland and wetland so that no vegetation will be removed or impacted within these areas to install the pipe (JPE 2025; Map 6). Erosion protection in the form of river stone will be installed at the bank of the creek, extending 2m downstream (Water's Edge 2025). A pipe was determined to be the best approach to managing stormwater, reducing potential impacts to the wetland.

It is also anticipated that this SWMF will be expanded to accommodate development at 672 Erbsville Road in the future (JPE 2025).

Two swales are proposed within the development area to provide additional stormwater management controls for areas that cannot drain to the SWMF. This includes one that is 460m^3 in size, capturing runoff from the rear yards, and one that is 120m^3 in size, along the northern boundary of the park block (Map 6). Finally, 95% of roof runoff will also be diverted to infiltration galleries (Water's Edge 2025).

2.1.2 Trail

A 3m wide trail footprint has been identified on development plans and is shown on Map 6. This trail will provide a connection from the internal road network adjacent to the SWMF, wrapping around the rear yards, and connecting to the park block where it terminates at Erbsville Road. The trail will match existing ground elevations and is located within the outer portions or outside of natural feature buffers, where feasible (JPE 2025).

2.2 Proposed Buffers

Table 1 provides an updated summary of buffers and constraints identified for the proposed development of 720 Erbsville Road. Buffers for the subject property maintain a distance of approximately 15-30m between the limit of development and natural features including the Laurel Creek-Sunfish Lake Provincially Significant Wetland (PSW) complex and the Laurel Creek watercourse. The distance between natural features and the limit of development is generally 10m in width in areas where only the woodland dripline associated with Environmentally Sensitive Policy Area (ESPA) #80 is present adjacent to the development. Some minor buffer reductions, totaling 0.27ha in area, are required to facilitate portions of the SWMF block and associated overflow, SWMF outlet pipe, infiltration swales, and the proposed trail. The limit of construction, as well as the PSW, watercourse and ESPA/woodland buffers, are shown on Map 6. Buffer reductions and proposed enhancement areas are shown on Map 7.

Table 1. Summary of Natural Heritage Constraints and Buffers

Natural Feature Constraint	Regulatory and Permitting Considerations	Project Considerations
Sunfish Lake-Laurel Creek PSW Complex (Core Environment Feature)	• Provincial Planning Statement (OMMAH 2024) • Ontario Regulation 41/24 • GRCA 2024 • Region of Waterloo OP (RMOW 2015) • City of Waterloo OP (2020a)	• Development and site alteration within the regulated wetlands are prohibited. • It must be demonstrated through an appropriate study (e.g. EIS) that a proposed development within 120m of a confirmed wetland boundary of a PSW (within the area of interference) will not negatively impact the wetland or its ecological functions. • A minimum 10m buffer has been recommended for Core Environmental Features. • A buffer of approximately 30m from the delineated PSW boundary has been identified for all areas within the subject property and has been incorporated into the limit of development to the extent feasible. However, portions of the trail grading and infiltration swales will require construction up to approximately 15m of the surveyed wetland boundary (Map 7). • The construction of the SWMF berm, emergency overflow, and the outlet pipe will also require some work in close proximity to the surveyed wetland (Map 7). The outer portion of the SWMF berm is anticipated to be constructed within 27-30m of the wetland, which is a very minor encroachment into the buffer. The outlet pipe will cross through the wetland buffer and feature itself; however, the pipe will be installed trenchlessly through the vegetated areas.
Laurel Creek Forest ESPA and Significant Woodland (Core Environment Feature)	• Provincial Planning Statement (OMMAH 2024) • Region of Waterloo OP (RMOW 2015) • City of Waterloo OP (2020a)	• Development and site alteration are not permitted within ESPAs or Significant Woodlands. • Development within 30m of an ESPA or Significant Woodland must demonstrate no negative impact to the feature through an EIS. • A minimum 10m buffer has been recommended for Core Environmental Features. • The woodland dripline and ESPA boundary have been delineated in the field; a 10m buffer has been identified from this boundary and incorporated into the limit of development. Encroachments into the 10m ESPA buffer are limited to minor grading and trail construction, up to approximately 3m in two areas (0.025ha; Map 7). Outside of these two areas, a 10m buffer will be maintained. • The outlet pipe will be installed trenchlessly within the woodland feature.
Laurel Creek and Wideman Creek (Supporting “A” Natural Features and Fish Habitat)	• Provincial Planning Statement (OMMAH 2024) • Federal Fisheries Act (2019) • Ontario Regulation 41/24 • GRCA 2024 • Region of Waterloo OP (RMOW 2015)	• Development and site alteration are not permitted within fish habitat, except in accordance with federal and provincial requirements to the satisfaction of the Department of Fisheries and Oceans (DFO). • Development and site alteration are not permitted in Supporting “A” Natural Features. • Development in the adjacent lands must demonstrate no negative impacts to the ecological function.

Natural Feature Constraint	Regulatory and Permitting Considerations	Project Considerations
	• City of Waterloo OP (2020a)	• Supporting Natural Features will be maintained, enhanced, and wherever possible, restored. • A 30m buffer is recommended on either side of permanent and perennial watercourses. • A 30m buffer has been provided for Laurel Creek (permanent watercourse) and Wideman Creek and is incorporated into the limit of development. The buffer for Wideman Creek has not been mapped as it does not overlap the subject property. • Three main locations of Laurel Creek where a 30m buffer cannot be maintained are associated with the trail and site grading in the north end of the development area, and associated with the trail and outlet pipe in the south end of the development area (Map 7). Construction in these areas is anticipated to be within approximately 20-25m from the creek. • The outlet pipe traverses the watercourse buffer and outlets directly into the creek.
Significant Wildlife Habitat (Supporting "A" Natural Features)	• Provincial Planning Statement (OMMAH 2024) • Region of Waterloo OP (RMOW 2015) • City of Waterloo OP (2020a)	• Development and site alteration are not permitted in Supporting "A" Natural Features. • Supporting Natural Features will be maintained enhanced and, wherever possible, restored. • Development in the adjacent lands must demonstrate no negative impacts to the ecological function. • Five Significant Wildlife Habitat (SWH) types are considered confirmed, with an additional 5 considered candidate or possible SWH for the study area. Four SWH have been confirmed within habitats that overlap the subject property, outside of the development area. • All identified SWH are entirely contained within the Sunfish Lake-Laurel Creek PSW complex or the Laurel Creek ESPA and protection will be provided by their respective buffers, with the exception of the outlet location and the associated pipe.
Corridors and Linkages	• Provincial Planning Statement (OMMAH 2024) • Region of Waterloo OP (RMOW 2015) • City of Waterloo OP (2020a)	• Linkages and corridors will be identified through appropriate studies accepted by the City. Once identified, they are to be maintained, enhanced or wherever possible, restored. • Three corridors have been identified within the study area: one along Laurel Creek, one along a hedgerow in the southeast of the subject property and one along Wideman Creek. • The corridor along Laurel Creek and Wideman Creek will be maintained and provided a watercourse buffer as described above, providing linkage functions. • Future enhancements are proposed for the Wideman Creek corridor in the Erbsville South Environmental Study (ESES) (Dougan and Associates et al. 2018) and Erbsville South Block Plan (City of Waterloo 2020b).

Natural Feature Constraint	Regulatory and Permitting Considerations	Project Considerations
		• Both the Laurel Creek corridor and Wideman Creek corridor provide opportunities for direct wildlife connections with the use of culverts, which may be considered in the future.
Habitat of Endangered and Threatened Species	• Provincial Planning Statement (OMMAH 2024) • Endangered Species Act, 2007 • Region of Waterloo OP (RMOW 2015) • City of Waterloo OP (2020a)	• Development and site alteration are not permitted within significant habitats of endangered and threatened species, except in accordance with provincial and federal requirements. • The habitats of endangered and threatened species are identified as Core Environmental Features. • Category 2 habitat for Blanding's Turtle is present within the subject property. This habitat is entirely contained within the PSW complex and Laurel Creek, and their buffers. • Category 3 habitat for Blanding's Turtle has been identified within the areas of 30m-250m of Category 2 habitats, within the study area. • Candidate SAR bat roosting trees have been identified within the subject property, including within the development footprint. • Black Ash is present within wetland communities that overlap the subject property. Individuals have been observed within the wetland through pre-construction monitoring and will need to be addressed once more detailed designs are developed.

2.3 Direct Impacts and Mitigations

Potential direct impacts associated with the proposed development associated with the recent changes to the development plans are limited to site grading, tree and vegetation removal, and any associated impacts to wildlife.

2.3.1 Site Grading

The preliminary grading plan has been revised by JPE to reflect revised site elements such as the reduction to one SWMF, the proposed trail, and infiltration swales. Areas where grading is required have been revised and are shown on Map 6. Grading will be completed outside of all significant natural features and their identified buffers, with the exception of minor reduction of buffer areas (0.31ha total) to allow for the construction of the SWMF, the trail, and the infiltration swales, as discussed in Table 1 and shown on Map 7. These encroachments are not anticipated to result in negative impacts to adjacent natural features because the stormwater management components are anticipated to include low-impact designs and the existing land use in most of these areas is currently disturbed. Potential impacts associated with the outlet pipe are discussed separately in Section 2.3.2. A small area (0.01ha) has been identified as additional buffer space/buffer gain, which will not be disturbed to offset some of the buffer area lost development in other areas (Map 7). It is also anticipated that amenity spaces and the SWMF block will have native species plantings which will provide additional enhancements. It is recommended that the design of the swales allow for native species plantings as well, to provide additional enhancement along buffer edges; however, the swale design will be determined through detailed design.

The trail is proposed to be constructed within 15-30m of the PSW, 20-30m of Laurel Creek, and 3-10m of the woodland. Direct impacts to the natural features as a result of trail construction will not occur.

The areas where the standard buffer distances cannot be met are not anticipated to cause negative impacts to the adjacent natural features, provided that the following mitigation measures are followed:

Mitigation:

- *The limit of construction should be protected with heavy duty erosion and sediment control (ESC) fencing in areas adjacent to natural features or isolated trees identified for retention.*
- *Graded areas should be re-vegetated as soon as possible to minimize erosion, and the selected seed mix should contain species that are native and complementary to adjacent natural vegetation communities.*
- *Infiltration swales should be naturalized with appropriate native species. The exact design of the swales is to be determined through detailed design.*
- *An ecological restoration plan, to the satisfaction of the reviewing agencies, is recommended to be developed during detailed design that outlines enhancement measures within buffer areas and areas with low impact design stormwater management infrastructure. Robust plantings in these areas will offset impacts of reduced buffers.*

2.3.2 SWMF Outlet Construction

The SWMF outlet pipe will require construction activities within woodland and wetland communities. However, by installing the pipe trenchlessly where it crosses these features, no

vegetation removal is anticipated. The construction of the outlet structure and placement of river stone will likely include works below the highwater mark of Laurel Creek and are anticipated to have adverse effects to bank vegetation; however, this is necessary to mitigate potential erosion impacts from the outlet (Water's Edge 2025). Additionally, the placement of the river stone may require the use of small equipment within the wetland and creek edge, which is considered a temporary disturbance. If possible, river stone materials should be brought in using wheelbarrows to minimize disturbance. Additional potential impacts to fish habitat associated with inputs to Laurel Creek are discussed further in Section 2.3.4.

Some limited temporary impacts may be possible as a result of activities in these areas, which can be mitigated appropriately as follows:

Mitigation:

- *The limit of construction should be protected with heavy duty erosion and sediment control (ESC) fencing in areas adjacent to natural features or isolated trees identified for retention. The limits of activity associated with the placement of river stone must be clearly demarcated to limit disturbance.*
- *Maintain riparian vegetation where possible, during construction of the outlet and placement of river stone.*
- *In and near water works should adhere to the Southern Region Spring Spawning Species In-Water Work Timing Window Guidelines avoiding the Spring spawning period (March 15-July 15) (OMNRF 2013a).*
- *Any work below the mapped highwater mark of Laurel Creek should be conducted using isolating measures in dry conditions such that there is no continuous water flow during construction. If standing water is present, the rescue and relocation of native fish species would be required.*
- *Maintain fish passage within Laurel Creek during all in and near water construction.*

2.3.3 Tree and Vegetation Removal

Direct impacts to natural features will include limited tree loss along the southeastern property boundary, in the vicinity of the proposed SWMF block, along the trail, and within the park/amenity block. The majority of the proposed development footprint is currently occupied by agricultural lands, and, as a result, vegetation removal within natural vegetation communities will be limited to the CUT1 community and southeastern hedgerow. Tree and vegetation removal will also be required within the anthropogenic community surrounding the residential dwelling. Some vegetation disturbance is anticipated associated with the placement of river stone at the SWMF outlet.

Trees that will likely require removal include those situated within the grading limit or in close proximity that may incur root damage as a result of grading. There is not expected to be any tree removal required within the boundaries of significant natural features. The following mitigation measures are recommended to ensure no negative impacts to vegetation associated with the proposed development.

Mitigation:

- *A detailed tree inventory and Tree Saving and Protection Plan should be completed at the detailed design stage. Trees shall be replaced at a 2:1 ratio to compensate for the*

canopy loss. Compensation plantings are recommended within natural feature buffers. Tree retention should be maximized to the extent possible.

- *A vegetation management plan must be approved prior to vegetation removal occurring onsite.*
- *It is recommended that tree protection fencing (and associated ESC fencing) be installed at the limit of grading where vegetation communities abut the proposed grading area. The limits of activity associated with the placement of river stone must be clearly demarcated to limit disturbance.*
- *Upon installation of the tree protection fencing, the area should be reviewed by a Certified Arborist to ensure that trees are properly protected and no limb or root damage has occurred.*
- *Vegetation should only be cleared where absolutely necessary.*
- *Areas to be cleared should be clearly marked using flagging tape, fencing, spray paint or other signage prior to the initiation of clearing activities.*
- *Trees will be felled into the area to be cleared to avoid damage to adjacent vegetation.*

Black Ash

At the time of writing the revised EIS (NRSI 2024), a few individuals of Black Ash (*Fraxinus nigra*) had been known from the study area associated with the PSW. Black Ash had been recently uplisted to Endangered and exact protections under the *Endangered Species Act* (*ESA)* had not yet been determined. Through pre-construction monitoring completed by NRSI in 2024 on the subject property, additional individuals have been identified; all observations to-date have been added to Map 6. Black Ash is listed as Endangered under O.Reg 230/08 because it is highly susceptible to the Emerald Ash Borer and is expected to see declines of >70% in the total number of individuals over the next two generations. It receives general habitat protection under the *ESA*, which is an area on which a species depends, directly or indirectly, to carry out its life processes (MECP 2025). All individual trees assessed as healthy by a qualified professional that have at least a diameter at breast height (DBH) of 8 cm are protected under the *ESA*, as well as all areas within 30m of a tree that meets the condition and size criteria. If proposed development or site alteration may result in harming or killing a healthy Black Ash with a DBH ≥8 cm, the proposed works may require a permit or authorization under the *ESA* to proceed. Harming or killing an individual applies to not only direct impacts to the tree, but also impacts to the habitat within 30m of the tree. No inventory or health assessments were completed for Black Ash individuals. It is recommended that an inventory and health assessment of all Black Ash individuals in and within 30m of the proposed development be completed at the detailed design stage, once exact development limits are known, to address the potential for implications under the *ESA* with regards to Black Ash.

2.3.4 Impacts to Wildlife and Habitats

Birds

The proposed development may temporarily displace wildlife species, including birds, that are currently using the subject property while the site is under construction. Species that use the subject property are common and well-adapted to relatively urban conditions and landscapes, and are expected to return to the adjacent natural areas. Additional habitat will also be provided in protected buffer areas post-development, provided that native tree and herbaceous plantings are installed within these areas.

Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs, and young, or avoidance of the area by breeding adults. Furthermore, any construction work required to installed the pipe, outlet, and river stone within natural features has the potential to harass/disturb wildlife.

According to the Canadian Wildlife Service (CWS), the peak breeding period for migratory birds that nest in treed habitat in southern Ontario is between April 1 and August 31 (ECCC 2023). During this period, the CWS recommends that no clearing of vegetation within simple and/or complex habitats occur. The *Migratory Birds Convention Act* (MBCA, Government of Canada 1994) protects migratory birds, their eggs and nests from being harmed or destroyed at any time of the year. However, nest searches, as a means of mitigation during the core breeding period, may be undertaken in "simple" habitats such as hedgerows, isolated trees, or constructed features (e.g., bridges, barns, etc.) where the potential to observe all active nests is relatively high. With the following mitigation measures, negative impacts to birds are not anticipated.

Mitigation:

- *During the time period from April 1 to August 31 it is recommended that no clearing of vegetation occur within the subject property.*
- *Should vegetation removal be required during the breeding and nesting season for migratory birds, surveys for nesting birds in "simple habitats" may be undertaken by a qualified biologist to permit vegetation removal should breeding bird absence be confirmed.*
- *A clearance letter is to be prepared by the qualified biologist that undertook the nest searches and submitted to the Developer for their files in the event a record of due diligence is requested by CWS. Areas identified as having no bird nesting activity can be cleared; however, clearing must occur within 48 hours of nest searching.*
- *It is unlikely that bird species that include raptors, hawks or owls are nesting within the proposed development area. However, timing of vegetation and removals should consider the timing windows for bird species protected under the Fish and Wildlife Conservation Act that are not afforded protection under the MBCA (November to March).*
- *ESC fencing is to be erected along the limit of development prior to any on-site works to ensure that construction activities and equipment are maintained outside of the protected areas and their buffers. The limits of activity associated with the placement of river stone must be clearly demarcated to limit disturbance.*

Fish

Direct impacts to fish and fish habitat during construction are understood to be limited to the construction of the SWMF outlet structure and placement of river stone flow dissipating measures along the along the banks of Laurel Creek. Installation works below the mapped highwater marks of Laurel Creek have the potential to result in the harmful alteration of fish habitat or the death of fish, which may require authorization from the DFO to proceed. Discussion of potential impacts related to water quality are discussed in Section 2.4.3. The following mitigation measures to reduce and/or mitigate direct impacts to fish and fish habitat are recommended:

Mitigation:

- *At the detailed design stage, correspondence with DFO is likely to be required. A Request for Review (RfR) may be required for construction below the highwater mark.*
- *In and near water works should adhere to the Southern Region Spring Spawning Species In-Water Work Timing Window Guidelines avoiding the Spring spawning period (March 15-July 15) (OMNRF 2013a).*
- *Any work below the mapped highwater mark of Laurel Creek should be conducted using isolating measures in dry conditions such that there is no continuous water flow during construction. If standing water is present, the rescue and relocation of native fish species would be required.*
- *Maintain fish passage within Laurel Creek during all in and near water construction activities.*

Species at Risk

Blandings Turtle

Category 2 habitat for Blanding's Turtle is present within the subject property (wetland and watercourse, plus 30m buffer) and is considered to be moderately tolerant of alteration (OMNRF 2013). The proposed development includes a total of 0.22ha of encroachment within Category 2 habitat for areas associated with natural feature buffers. These areas are currently comprised of agricultural field, cultural thicket, and anthropogenic areas (residential) and are generally unsuitable for the life processes of Blanding's Turtle. Buffer areas outside of the limit of development and adjacent to natural features will be planted and enhanced to provide suitable habitat for species like Blanding's Turtle. Efforts have been made to avoid Category 2 habitats to the extent possible. An additional encroachment will occur for the pipe outlet (approximately 5m into the wetland) and river stone at the creek edge. The small overlap between the proposed development footprint and Category 2 Blanding's Turtle habitat is not anticipated to impact the species or its habitat, provided that mitigation measures are followed. A net ecological gain is anticipated to benefit this species through the enhancement of buffers and movement corridors. Recommendations are provided below; additional mitigation measures that may be required by the MECP will be addressed at the detailed design stage. An Information Gathering Form (IGF) will be submitted to the MECP with updated development details. Dependent on comments received from the MECP, it may be necessary to pursue an authorization under the *ESA* for the modification of this habitat.

Mitigation:

- *Ground disturbance (including trenchlessly installing the outlet pipe) within natural features identified as Category 2 Blanding's Turtle habitat should occur outside of the overwintering period for turtles (November 1 – March 31). Soil disturbance should be minimized. If tree removals are required in these areas, only surface cuts should be made between November 1 – March 31. Root disturbance should occur between April 1 – October 31.*
- *Prior to any construction occurring, the limits of disturbance should be clearly demarcated and wildlife exclusion fencing should be installed. Immediately following the completion of construction work in the area around the outlet pipe, the ground should be stabilized and exclusion fencing should be removed to ensure wildlife movement is not impacted.*
- *The proposed work area shall be surrounded with geotextile cloth fencing (exclusion fencing/sediment control measures) in order to exclude turtles from the work area and to*

prevent nesting in areas which may be disturbed by digging and other works. Fencing should be installed before April 1 to ensure that turtles aren't accessing the development area to nest before the fence goes up. Fencing is to be regularly inspected and maintained throughout the construction period. Any gaps in the fencing should be immediately repaired and replaced. Fencing will follow guidelines outlined in the documents, Reptile and Amphibian Exclusion Fencing (MNRF 2013c) and Best Management Practices for Mitigating the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario (MNRF 2016).

- *Prior to construction work starting, examination of the work area by a qualified biologist and the relocation of any wildlife is recommended. A targeted wildlife search should be completed within the fenced-in development area prior to construction starting to ensure no wildlife has been trapped within the development area.*
- *Exclusion/sediment control measures should remain in place throughout the life of the project and regularly inspected to ensure good working condition. Regular attention should be paid to exclusion fencing located adjacent to the wetland/watercourse.*
- *Site grading will occur outside of sensitive turtle habitats to the greatest extent possible to avoid contraventions of the ESA.*
- *Permanent fencing around the back of the lots/along buffer limits should be installed with permanent exclusion measures, to prevent Blanding's Turtle from accessing the trail, yards, or crossing roads within the development.*
- *Native plantings and enhancements to buffer areas are recommended as a measure to ensure the functionality of buffers and to increase the availability of suitable habitat for wildlife species. An ecological restoration plan is recommended to be prepared for the buffer areas associated with the proposed development area at the detailed design stage. These buffer enhancements will improve the quality of habitat for Blanding's Turtle since much of the Category 2 habitat area is currently agricultural field planted with row crops.*
- *Permanent fencing should be erected around the SWMF to prevent turtles from entering the pond. SWM ponds are typically fenced for public safety, however, a specific wildlife fence can be affixed as well. This can be explored through detailed design.*

A total of 3.10ha of Category 3 habitat for Blanding's Turtle overlaps with the proposed development in the southern portion of the property. The Category 3 habitat identified within the proposed development area consists of agricultural row crop, hedgerow, cultural thicket, and anthropogenic areas. No Blanding's Turtles were observed using the development area for any part of their life cycle despite extensive field surveys. Category 3 habitat within the development area currently connects Category 2 habitat that occurs on the western side of Erbsville Road, where there is the risk of road mortality for turtles attempting to cross to the other side. The future enhancement of the Wideman Creek corridor and replacement of the culvert under Erbsville Road, as described in the ESES (Dougan and Associates et al. 2018) and Erbsville South Block Plan (City of Waterloo 2020b), are expected to provide a safer and more appropriate corridor for Blanding's Turtle as well as other turtle species attempting to travel from the Laurel Creek-Sunfish Lake PSW complex to the west side of Erbsville Road. Direct impacts to Category 3 habitat for Blanding's Turtle within the development area are anticipated to be minimal and are not expected to adversely affect the ability of the species to carry out its life processes as long as appropriate mitigation measures are undertaken. An IGF will be submitted to the MECP with updated development details, identifying the proposed future movement corridors and appropriate mitigation measures. Dependent on comments received

from the MECP, it may be necessary to pursue an authorization under the *ESA* for the modification of this habitat.

Since Category 3 habitat for Blanding's Turtle has been identified within the proposed development area, direct impacts to the species, including mortality as a result of interactions with construction equipment, are possible during the construction phase if proper mitigation measures are not taken. The following mitigation measures are recommended to ensure no direct impacts:

Mitigation:

- *In order to mitigate the loss of marginal Category 3 habitat within the proposed development area, an ecological enhancement plan is recommended to be prepared at the detailed design stage. It should include details on the enhancement of buffer areas to increase the functionality of overland movement habitat for the species.*
- *The presence of the Wideman Creek corridor will ensure that a linkage is available between the Laurel Creek-Sunfish Lake PSW complex and Blanding's Turtle habitat on the west side of Erbsville Road.*
- *Wildlife exclusion fencing discussed in relation to Category 2 habitat will also ensure that there are no direct impacts to Blanding's Turtle while they are migrating or moving between habitats.*
- *During the detailed design of the future road widening, turtle barrier fencing and eco-culverts are recommended to ensure turtle movement is maintained throughout the study area. Timing windows will need to be considered to minimize impacts to turtles during the active season, while also considering implications to other sensitive species (i.e., fish).*
- *In order to prevent migrating turtles from entering the developed areas or SWMF ponds, permanent wildlife fencing is recommended. Specifications should be provided at the detailed design stage.*

Bat Species at Risk

At the time of writing the revised EIS (NRSI 2024), candidate bat cavity roost trees for Little Brown Myotis and Northern Myotis, both listed as provincially and federally Endangered, were identified within the development footprint. In January 2025, three migratory bat species were uplisted to Endangered provincially under O.Reg 230/08, including Silver-haired Bat (*Lasionycteris noctivagans*), Eastern Red Bat (*Lasiurus borealis*), and Hoary Bat (*Lasiurus cinereus*). All three migratory species roost in trees; however, Hoary Bats and Eastern Red Bats roost by hanging from the foliage of trees, whereas Silver-haired bats roost in tree cavities or under exfoliating bark (COSEWIC 2023). Treed maternity roosts for Hoary Bats and Eastern Red Bats tend to include large diameter and tall (i.e., canopy or super-canopy) trees (COSEWIC 2023). Additional bat habitat assessments have not been completed to specifically address Hoary Bats and Eastern Red Bats; however, the same 8 candidate roost trees identified for Little Brown Myotis and Northern Myotis would be suitable for Silver-haired Bats. Three candidate SAR bat cavity roosting trees were identified within the development footprint and will likely require removal. Two of these trees (A and B) are located within the hedgerow along the southeastern property boundary. Tree C is located within the cultural thicket. Additional trees in close proximity to the limit of grading or associated with the installation of river stone may also require removal, subject to further study (i.e., comprehensive tree inventory) during detailed design.

There is no suitable SAR bat habitat within the buildings/structures on the subject property, which are proposed to be removed. More recently, MECP has been providing guidance related to tree removals such that if the proposed activity will not impair or eliminate the function of the habitat (e.g., by only removing a proportionally small number of potential maternity or day roost trees in treed habitats which would not result in fragmentation or barriers), tree removals outside of the bat active season would not result in the contravention of the *ESA* and additional monitoring is not required (MECP 2022a). If tree removal is required for the demolition of the existing house, the same mitigation measures apply.

The proposed tree removals represent a proportionally small number of candidate habitat trees and the surrounding habitats will not be impacted, therefore the removal of trees associated with the proposed development is not considered to contravene the *ESA* as it relates to bat SAR.

For the foliage roosting species (Hoary Bat and Eastern Red Bat), specific guidance from MECP has not been provided; however, given the small proportion of tree removals anticipated for the proposed development, authorization under the *ESA* is not anticipated to be required. This is to be confirmed through detailed design.

The following mitigation measures to avoid direct impacts to SAR bats are recommended:

Mitigation:

- *A detailed tree inventory and Tree Saving and Protection Plan should be completed at the detailed design stage. Trees shall be replaced at a 2:1 ratio to compensate for the canopy loss. Compensation plantings are recommended within natural feature buffers. Tree retention should be maximized to the extent possible.*
- *To prevent harm to SAR bats, and avoid contravention of the ESA, all proposed tree removal and vegetation clearing must be completed outside of the bat active season, which occurs from April 1 to September 30.*
- *Vegetation disturbance associated with the outlet structure and pipe should be minimized to the extent possible.*
- *Ecological restoration that includes tree plantings, as determined through detailed design, should provide additional roosting and foraging habitat in the long-term for bat SAR.*

Significant Wildlife Habitat

Significant Wildlife Habitats (SWH) associated with the subject property are confined to natural features including ESPA #80 and the Laurel Creek-Sunfish Lake PSW complex. Potential direct impacts to these habitats are limited to the works associated with the outlet structure and pipe, which is a small isolated area that will involve a short duration temporary impact. The following SWH types are overlapping with the construction area associated with the outlet:

- Turtle Wintering Habitat for Snapping Turtle (*Chelydra serpentina*);
- Amphibian Breeding Habitat (Woodland);
- Seeps and Springs; and
- Presumed Candidate Bat Maternity Colonies.

The following mitigation measures are recommended to ensure no negative impacts to these SWH:

Mitigation:

- *A detailed tree inventory and Tree Saving and Protection Plan should be completed at the detailed design stage. Trees shall be replaced at a 2:1 ratio to compensate for the canopy loss. Compensation plantings are recommended within natural feature buffers. Tree retention should be maximized to the extent possible.*
- *Vegetation disturbance associated with the outlet structure and pipe should be minimized to the extent possible.*
- *All mitigation measures recommended for Blanding's Turtle habitat above apply to Snapping Turtles, as well as amphibians breeding in the creek/wetland. It is possible that amphibians overwinter in these natural areas. Timing windows for the outlet construction should be adhered to in order to avoid direct impacts to these species.*
- *Ecological restoration that includes tree plantings, as determined through detailed design, should provide additional habitat for these species.*
- *Detailed design of the outlet pipe location should avoid the location of any large seeps.*

2.4 Indirect Impacts and Mitigations

2.4.1 Sedimentation and Erosion

During construction, areas of bare soil will be exposed which have the potential to erode during rainfall events and impact adjacent natural features. In the event of a heavy rain, sediment laden runoff can enter adjacent natural areas by way of overland flow. In order to protect on-site and off-site natural features from potential impacts due to sediment, an Erosion and Sediment Control (ESC) plan must be developed prior to any construction activities on the site. The details of the ESC plan will follow the Erosion and Sediment Control Guidelines for Urban Construction (TRCA 2019) which will be provided during final design. The ESC plan will take into consideration the recommendations provided in the ESES (Dougan and Associates et al. 2018).

Preliminary recommendations for sediment and erosion control have been provided in the FSR prepared by JPE (2025) which include silt fences, mud-mats at construction accesses, temporary ditches/swales, straw bale/rock check dams, and temporary sediment ponds, as necessary. The following mitigation measures are recommended to mitigate and/or reduce impacts associated with sedimentation and erosion:

Mitigation:

- *A final ESC plan should be prepared and implemented taking into account recommendations provided in the ESES and details provided by the project engineers.*
- *Areas of bare soil, including topsoil stockpiles if required, should be moistened with water to prevent dust and seeded with native seed mix if left inactive for more than 30 days.*
- *During construction, site inspections of erosion and sediment control solutions should be conducted to identify deficiencies or damage to fencing. Particularly any sediment laden runoff from the development site entering the wetland should be identified and addressed immediately.*

- *The use of river stone at the storm outlet is anticipated to mitigate impacts to erosion to Laurel Creek (Water's Edge 2025). This is to be confirmed at detailed design.*
- *Details regarding streambank stability at the outlet location are to be confirmed at detailed design to ensure no impacts to Laurel Creek and the associated habitats.*
- *An environmental monitoring program is recommended to ensure that the ESC control measures are installed, maintained, and functioning as intended.*

2.4.2 Management of Stormwater Quantity

To assess the potential impacts of changes to surface and groundwater from the proposed development, Water's Edge prepared a water budget for the pre-development and post-development conditions. The Stormwater Management Report (Water's Edge 2025) presents the simulated annual runoff, infiltration, evapotranspiration, and precipitation values. Based on the simulated pre-development conditions, groundwater infiltration from the development area provides a larger volume of water that supports the wetland, than does runoff. A monthly hydrograph of the pre-development runoff and infiltration volumes to the wetland from the development area is provided in Figure 1 using data from Water's Edge (2025). While the annual volumes are similar, the magnitude of infiltration is greater on a monthly basis. The ESES (Dougan and Associates et al. 2018) describes the groundwater conditions for the development area, such that lands to the east are providing shallow groundwater flow that supports the hydrological function and hydroperiod of the wetlands in the area. The ESES also provides evidence for the importance of surface water runoff to the sustainability of the wetlands (Dougan and Associates et al. 2018).

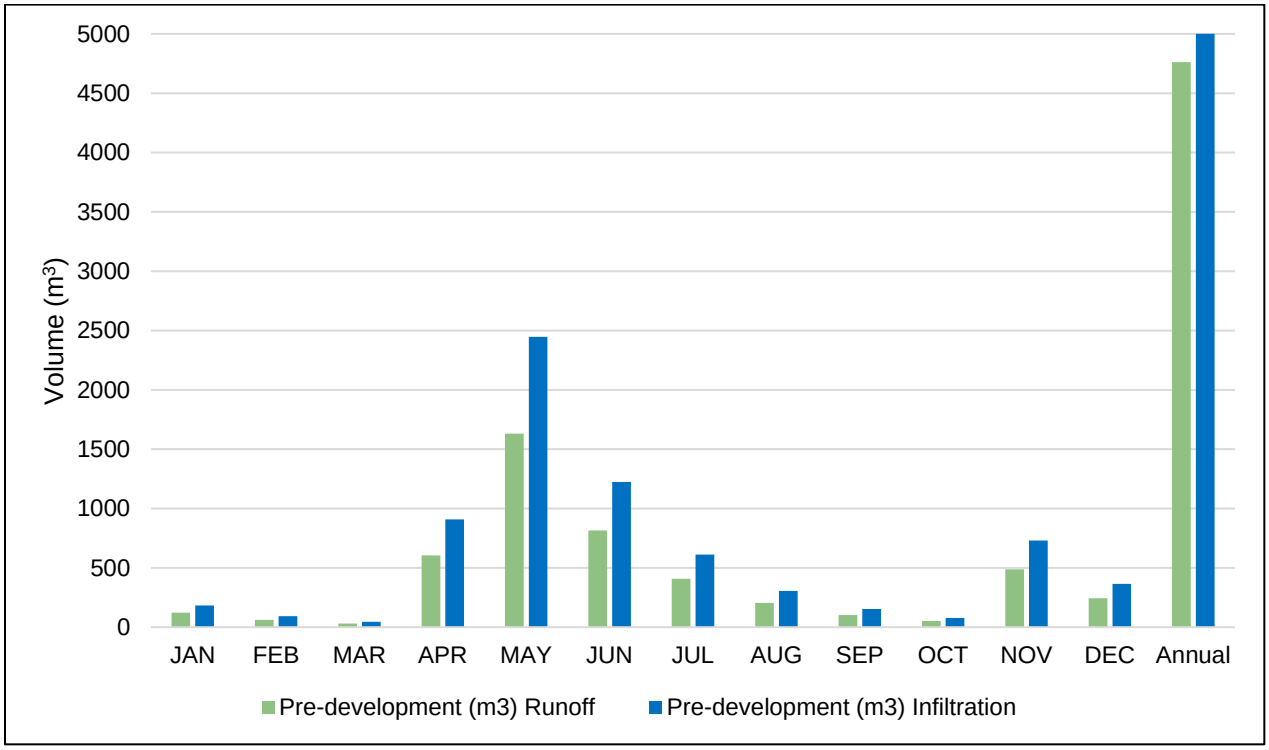


Figure 1. Simulated Pre-development Runoff and Infiltration to the Adjacent Wetland
(data from Water's Edge 2025)

Annual Surface Water Runoff Water Budget

Under pre-development conditions, surface runoff is highly limited by the existing topography and agricultural crops. As a result, the pre-development runoff volume to the adjacent natural area is between 30-1631m^3 per month (Water's Edge 2025). The largest volume of runoff directed toward the natural area from the development area occurs in May (1,631m^3) when vegetation growth typical begins, which appears to be an outlier on an annual scale. Of the annual runoff directed to the adjacent natural area, a small portion is intercepted by the Thicket Swamp (SWT3-2). The pre-development catchment area of the wetland at the northeast corner of the development is a small proportion of the overall wetland catchment. The remaining wetland area along the eastern development boundary is located on the banks and immediate floodplain of Laurel Creek. Based on the existing topography and distance to the creek, it is expected that runoff directed to the eastern boundary in the pre-development condition flows directly into Laurel Creek and does not support wetland vegetation.

The proposed development and stormwater management plan will direct all runoff to infiltration galleries, swales, and the SWMF pond (JPE 2025). As a result, no runoff will be directed to the adjacent natural areas in the post-development condition, apart from minimal amounts of overland flow from adjacent rear yards. The outlet going directly into Laurel Creek will bypass the wetland, reducing impacts to the wetland habitat (Water's Edge 2025). Increases in runoff to Laurel Creek are considered negligible compared to flow of the creek (Water's Edge 2025). Any potential impacts associated with water quality are discussed below in Section 2.4.3.

The results of groundwater and surface water monitoring conducted in the ESES (Dougan and Associates et al. 2018) indicate that the wetland surrounding Laurel Creek, adjacent to the development area, is primarily supported by shallow groundwater flow, and that groundwater discharge occurs in the wetland and Laurel Creek. The mitigations listed below, in addition to those listed for groundwater balance, water quality, and wildlife, will ensure no negative impacts to the wetland and watercourse.

Mitigation:

- *Laurel Creek should continue to be monitored for changes in surface water runoff volumes during and post-construction. Results should be compared to the pre-development monitoring completed for this site.*

- *Post-construction assessments of the stormwater system should be conducted to ensure the SWMF and infiltration galleries are functioning as designed. This should include wet and dry weather events, and extreme weather events, with photographic evidence recorded during each monitoring assessment.*

Annual Groundwater Infiltration Water Budget

The proposed stormwater management plan includes several lot-level infiltration galleries that will intercept runoff from the development (JPE 2025). The galleries will infiltrate the first 25mm of rainfall, and direct excess water towards the stormwater management pond (Water's Edge 2025). Additionally, the two infiltration swales will increase groundwater recharge (Water's Edge 2025). With the enhanced infiltration, an annual surplus of over 2,800m^3 is proposed (Water's Edge 2025). The ESES (Dougan and Associates et al. 2018) indicates that shallow groundwater flow originating from the development area contributes to the hydrological function of the adjacent wetland. It is anticipated that infiltrated stormwater will continue to be directed to the wetland based on the existing groundwater contours and hydraulic conductivity of soils. However, this assumes that the infiltration capacity and hydraulic conductivity of soils post-

development is maintained. Given the short distance between the development area, the proposed infiltration galleries and swales, and the natural area, the annual contribution of shallow groundwater is expected to support the hydrology of the wetland. An increase to infiltration in the development area, and therefore an assumed increase in discharge in the wetland and watercourse, has the potential to impact vegetation that is sensitive to long periods of inundation. However, the topography of the natural area adjacent to the development is such that excess water from groundwater discharge and saturated soils is expected to drain towards the watercourse, rather than pooling and inundating vegetation for extended periods.

A typical hydroperiod for an alluvial swamp consists of wet or saturated conditions between late October and early June, and a dry period from June through early October (Mitsch & Gosselink 2007). Research conducted by the Credit Valley Conservation Authority (CVC) and the Toronto and Region Conservation Authority (TRCA) indicates that a Thicket Swamp (red-osier dogwood thicket swamp is used in the example) typically has a dry period from late July to September, with wet or saturated soil conditions occurring in late June through July, and again in September through late October (Sampson & Del Giudice 2012). The proposed water budget follows a similar annual pattern for runoff and infiltration volumes.

Provided that the stormwater management system functions as intended, and the following mitigation measures are followed, no impacts to groundwater contributions to the wetland and watercourse are anticipated as a result of the proposed development. The mitigation measures listed below, and those listed for runoff water balance, water quality, and wildlife will ensure the natural environment and habitats adjacent to the development are maintained during and post-construction.

Mitigation:

- *Laurel Creek should continue to be monitored for changes in surface water runoff volumes during and post-construction. Results should be compared to the pre-development monitoring completed for this site.*

- *Groundwater monitoring should continue during and post-construction with results compared to the pre-development data. Where possible, pre-development monitoring stations should be maintained, or relocated in close proximity to the pre-development stations.*

- *Vegetation monitoring within the wetland should continue during and post-construction to identify any changes in the health, composition, and diversity of species. Results should be compared to the pre-development data to identify any negative impacts to the wetland health and vegetation. Should negative impacts be identified that are a result of the development, adaptive management solutions should be implemented (e.g., changes to swale or infiltration gallery design to direct water to/away from the wetland).*

- *Pre-development terrestrial and aquatic monitoring should continue during and post-construction to identify changes in fish, wildlife and benthic communities. Recommendations for adaptive management solutions, such as changes to the infiltration galleries, should be included in annual monitoring reports, if negative impacts are identified.*

2.4.3 Management of Stormwater Quality

The preliminary stormwater management strategy described in the FSR (JPE 2025) and SWM report (Water's Edge 2025) identifies how water quality will be maintained for the subject property and adjacent wetlands and watercourses. The maintenance of water quality parameters is important from an ecological perspective, especially given the sensitive species that have been documented using Laurel Creek and Wideman Creek in the study area. In particular, coolwater and coldwater fish species rely on specific temperature regimes and ranges for spawning and other life processes. Additionally, sensitive wildlife, such as Snapping Turtle and Blanding's Turtle, rely on maintained water quality and thermal regimes for overwintering and food sources. Much of the impact assessment from the second EIS submission is the same; however, given that an outlet pipe is now proposed to directly convey runoff to Laurel Creek, additional consideration for the water quality of Laurel Creek is provided. Preliminary analysis of water temperature changes is provided in the SWM report (Water's Edge 2025) which assumes that water will be cooled prior to discharging to Laurel Creek; this is to be confirmed through detailed design to ensure no negative impacts to fish and other wildlife. Furthermore, during spring snow melt events, there is potential for increased total suspended solids (TSS) and chloride to Laurel Creek. A salt management plan should be prepared at the detailed design stage to ensure the SWMF strategy adequately mitigates impacts to water quality. These details will be required to obtain input from DFO on whether an authorization will be required to implement this strategy.

Provided that the preliminary stormwater management strategy achieves 80% TSS removal for 90% of annual flows as described in the FSR and SWM report, and the following mitigation measures are followed, no impacts to water quality are anticipated as a result of the proposed development.

Mitigation:

- *During construction, site inspections of erosion and sediment control solutions should be conducted to identify deficiencies or damage to fencing.*
- *Laurel Creek and Wideman Creek should continue to be monitored for changes in water quality following implementation of the proposed stormwater management strategy. Results should be compared to the pre-development monitoring completed for this site.*
- *The infiltration swales are recommended to be naturalized with native plantings to provide additional cooling effects.*
- *Snow storage locations should be located as far as possible from the wetland and storm water drainage intake, to reduce the potential for increased salt going to sensitive receivers. A Salt Management Plan should be prepared through detailed design.*
- *At the detailed design stage, if modelling determines that water temperature and quality are not adequately controlled, additional low impact design measures (e.g., perforated pipes, additional infiltration measures) may be required.*

2.4.4 Indirect Impacts to Wildlife

Indirect disturbances can stress natural features and weaken their ecological integrity. Natural features in a weakened state are more susceptible to the establishment and proliferation of invasive, non-native species such as Black Locust (*Robinia pseudoacacia*) and Common Buckthorn (*Rhamnus cathartica*). The establishment of invasive species in natural vegetation communities reduces their ecological value by suppressing native species, reducing biodiversity, and decreasing habitat suitability. Potential indirect impacts to wildlife in adjacent

natural features may arise from noise and dust associated with construction activities and unnatural lighting resulting from the development. Large amounts of dust can induce changes in vegetation due to increased heat absorption and decreased transpiration. Dust can also cause adverse effects to wetlands and aquatic systems through increased sedimentation. Indirect impacts associated with construction are anticipated to be temporary and localized; therefore, significant effects on wildlife from noise and dust are not expected.

The wetland community identified as habitat for SAR, including Blanding's Turtle and Black Ash, as well as multiple SWH, has the potential to be indirectly impacted by the proposed development. The mitigations listed below, in addition to those listed for changes to surface water and groundwater balance and water quality, will ensure no negative impacts to this habitat.

Mitigation:

- *Dust and noise associated with construction is anticipated to be temporary. Best Management Practices for limiting dust should be employed, such as moistening areas of bare soil with water during construction activities and seeding areas of bare soil within 30 days of being inactive.*
- *Topsoil should be stockpiled in areas with limited exposure to wind and away from buffers and natural features. Native seed mixes should be utilized to reduce erosion of stockpiles.*
- *Construction activities should be limited on a daily basis to daytime hours (typically 7:00am to 7:00pm).*
- *Lighting designs should include shielding and directional lighting on roads and buildings to avoid lightwash impacts on wildlife and their habitats. Detailed lighting plans prepared as part of detailed design for the development should ensure that 0 foot-candles are within the retained natural features and their buffers. If lighting is required for the proposed trail, this should be limited to the extent possible. DarkSky approved lighting is recommended within the subject property.*
- *Permanent wildlife exclusion fencing should be established at the limit of buffer areas to prevent wildlife, including turtles and amphibians, from entering the proposed development.*
- *The limit of development should be well established to avoid excessive vegetation removal during grubbing, grading and other construction activities.*
- *Designated areas for construction lay-down, vehicle access, parking, equipment storage, stockpiling of materials and on-site construction offices should be located outside of natural features and their buffers, and ideally these areas should be kept away from buffers to limit potential indirect impacts to natural features.*
- *Water quality shall be maintained in Laurel Creek to ensure no negative impacts to SAR habitat, fish, and SWH. At detailed design, modelling is to ensure that thermal gradients are maintained so the habitats can continue to maintain overwintering function and appropriate fish habitats. Water quality must also be maintained, which is to be confirmed at detailed design.*

Maintenance of the SWMF pond has the potential to impact wildlife such as amphibians and turtles which may take up residence in the pond. It is well documented that Midland Painted

Turtles (*Chrysemys picta*) and Snapping Turtles move into man-made ponds after construction, and it is possible that the ponds may attract Blanding's Turtles as well. The footprint of the actual pond has been placed outside of the Category 2 habitat of Blanding's Turtle which will avoid the need for registering any maintenance works for an exemption under the *ESA*, but best management practices should be employed when planning pond clean out. Timing windows to avoid the active turtle season as well as wildlife salvage prior to activities will help avoid impacts to wildlife.

Mitigation:

- *Install permanent fencing (such as chain link plus a permanent wildlife barrier) around the SWMF pond to effectively exclude turtles (including juveniles) from the infrastructure.*
- *Assess wildlife use of the pond prior to clean-out. Avoid in-water maintenance of SWMF pond during the summer season when turtles may be using the pond (i.e. avoid work during May 1 to August 31).*
- *Implement wildlife and fish salvage immediately prior to maintenance work (i.e. dredging), to ensure that turtles are not overwintering in the pond.*

For the proposed trail, low impact design features should be implemented to minimize disturbance next to natural areas. Trails within the outer portions of buffers are permitted, as per the ESES, provided that they do not reduce the integrity and functionality of the buffer (Dougan and Associates et al. 2018). Negative impacts associated with the trail are not anticipated with the following mitigation measures:

Mitigation:

- *Erosion and sediment control fencing should be installed at the limits of trail construction where it is located close to sensitive natural features, such as woodlands and wetlands.*
- *Permeable surfaces such as crushed gravel or permeable pavers are recommended to maintain surface water inputs within wetland catchment areas.*

2.5 Impact Assessment Summary

Table 2 below provides an updated summary of all potential impacts and recommended mitigation measures. No negative impacts to natural features, regulated wildlife, or their habitats are anticipated, provided that the recommended mitigation measures are followed.

Table 2. Impact Assessment Summary

Activity	Potential Impact	Recommended Mitigation Measure(s)	Residual Negative Impact
Design and Construction Phase			
Grading and Vegetation Grubbing/Habitat Removal	• Construction activities are proposed in close proximity to natural features and habitats.	• The limit of development should be identified with heavy-duty ESC fencing to protect adjacent features and prevent unintended encroachment. ESC measures should be regularly inspected. • Graded areas should be revegetated as soon as possible. • Buffers should be naturalized to provide enhanced protection of natural features. • If any live/healthy Black Ash trees that meet the regulations for protection are located within 30m of any construction activities, additional correspondence with MECP may be required. Further assessments are recommended at the detailed design stage.	• Not significant
	• Tree removal will be required in anthropogenic communities and a hedgerow, which have been identified as candidate SAR bat habitats.	• Tree removals should occur outside of the bat active window, which occurs from April 1 – September 30, to avoid contravention of the *ESA*. • TPF is recommended adjacent to retained trees and woodlands. • A Tree Inventory and Savings Plan should be prepared at the detailed design stage. Tree retention should be maximized to the extent feasible. • Suitable trees should be planted in buffer areas to provide compensation for tree removals. • Enhancement of other wildlife corridors (i.e., buffer plantings) will provide better linkage functions than the current hedgerow.	• Not significant
	• Removal of Category 2 Blanding's Turtle Habitat (0.22ha) • Removal of Category 3 Blanding's Turtle Habitat (3.10ha)	• Buffer enhancements (0.47ha) will provide additional habitat for Blanding's Turtle, creating a better movement corridor on the subject property. • Removal of vegetation within Blanding's Turtle habitats should occur outside of the active season for Blanding's Turtle, which occurs from April 1 - October 31. • Establish wildlife exclusion fencing at the limit of buffer areas/construction.	• Not significant
Grading and Vegetation Grubbing/Habitat Removal & Active Construction	• Bird nest disruption and avoidance, and active nest	• Vegetation removal should occur outside of the typical breeding bird season (April 1 – August 31). • If vegetation removal must occur during the bird breeding season, retain an avian biologist to survey for active nests just prior to	• Not significant

Activity	Potential Impact	Recommended Mitigation Measure(s)	Residual Negative Impact
	destruction; other wildlife avoidance	vegetation removal activities. This does not apply to candidate bat roost trees. • Restrict the daily timing of construction activities to between 7:00 am and 7:00 pm. Construction lighting should be directed away from natural areas and buffers. • Establish wildlife exclusion fencing at the limit of buffer areas/construction. • Areas of bare soil should be moistened with water to prevent dust and seeded if left inactive for more than 30 days.	
Outlet Pipe Construction	• Blanding's Turtle • Fish and Fish Habitat • SWH	• Ground disturbance (i.e., pipe install) within Category 2 habitat should not occur during the turtle overwintering period which occurs from approximately November 1 – March 31. This will also reduce impacts to overwintering amphibians. • Limit the area of construction within the wetland/woodland/watercourse habitats to smallest extent feasible. The limit of construction is to be surrounded with ESC and wildlife exclusion fencing. Remove the fencing around the construction zone surrounding the outlet pipe immediately after construction work is complete in this area/ground is stabilized to ensure movement is facilitated. • In and near water works should adhere to the Southern Region Spring Spawning Species In-Water Work Timing Window Guidelines avoiding the Spring spawning period (March 15-July 15) (OMNRF 2013a). • Any work below the mapped highwater mark of Laurel Creek should be conducted using isolating measures in dry conditions such that there is no continuous water flow during construction. If standing water is present, the rescue and relocation of native fish species would be required. DFO correspondence is likely to be required. • Maintain fish passage within Laurel Creek during all in and near water construction activities.	• Not significant
Construction	• Indirect impacts to groundwater and surface water functions for	• The use of infiltration galleries and infiltration swales provide additional opportunities for infiltration and increase the lag time during storm events.	• Not significant

Activity	Potential Impact	Recommended Mitigation Measure(s)	Residual Negative Impact
	wetlands and watercourses	• The wetland and watercourse are not anticipated to be negatively impacted by the SWMF design. However, this is to be confirmed at the detailed design stage. • Maintenance of water balance in the wetland will ensure habitats identified for SAR and SWH are protected. • Trails design should consider low impact designs. Lighting should be minimized and DarkSky approved. • Monitoring during and post-development will be required to ensure mitigation measures are functioning. At the detailed design stage, adaptive management activities should be outlined to ensure no negative impacts.	
	• Changes in water quality	• Buffer plantings, SWMF plantings, and naturalization of infiltration swales will provide additional cooling effects for water being routed to Laurel Creek. This is to be confirmed at detailed design. • Monitoring of water quality parameters should continue during- and post-construction to ensure mitigation measures are functioning as intended. At the detailed design stage, adaptive management activities should be outlined to ensure no negative impacts. • A salt management plan is recommended. • A Sediment and Erosion Control Plan should be developed and implemented.	• Not significant
	• Sedimentation and Erosion	• A Sediment and Erosion Control Plan should be developed and implemented. • Install silt fencing along the boundaries of the construction zone, inspect on a regular basis, remove accumulated sediment as needed, and immediately replace any damaged fencing.	• Not significant
Post-Construction Use			
Resident Occupancy	• Disturbances to adjacent and retained natural features on property	• "Naturally Your Waterloo" brochure should be distributed to residents. • Permanent fencing should be erected to minimize encroachment into adjacent natural areas. Wildlife exclusion fencing should be affixed to reduce human contact with sensitive wildlife. • Garbage, leaf litter, and other debris should not be deposited within the adjacent forest or wetland, or within other existing subject property natural features.	• Not significant

Activity	Potential Impact	Recommended Mitigation Measure(s)	Residual Negative Impact
		• The use of lawn or garden chemicals should be reduced or eliminated. • Any landscape plantings should use native species to avoid the proliferation of non-native species within adjacent natural features. • Household pet cats should not be permitted by the owners to roam within the adjacent natural features. • A permanent trail system should be created to prevent residents from trespassing into protected natural areas.	
SWMF Maintenance	• Impacts to wildlife	• Permanent fencing should be installed around SWMFs to exclude turtles from using ponds. • Pond clean-out should adhere to specific wildlife timing windows.	• Not significant

3.0 Summary and Conclusions

NRSI was retained by Sunvest Development Corp. to complete an EIS for a proposed development at 720 Erbsville Road in the City of Waterloo, Ontario. This EIS addendum incorporates updated information from revised engineering reports and concept plans. It also addresses questions and comments from agency staff that were made on the previous EIS submission from January 2024. An updated impact assessment has been provided and no significant negative impacts have been identified. Some details will need to be confirmed at the detailed design stage to ensure no negative impacts will occur, and additional agency (i.e., MECP, DFO) correspondence will be required to fully understand legislative requirements and whether additional mitigation measures are required. At this time, we trust that this is sufficient to address municipal and GRCA requirements at the conceptual design stage for a zoning by-law amendment.

Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Sincerely,
Natural Resource Solutions Inc.

Laura Hockley, B.E.S.
Ecologist/Project Manager

Nyssa Hardie, M.Sc., E.P.
Ecohydrologist

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MAPS

Map 6

720 Erbsville Road Environmental Impact Study

Proposed Development

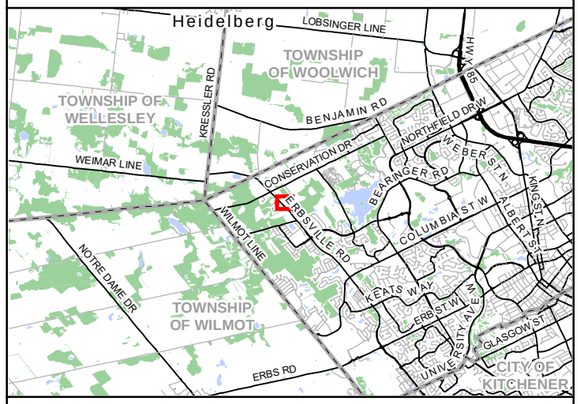
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CUW1
Laurel Creek
SWT3-2
ANTH
G
H
F
E
D
C
PARKLAND/ AMENITY
CUT1
ANTH
AG
FOM
See Inset 1
ERBSVILLE ROAD
SWMF BLOCK
B
HR
A
Emergency Outflow
FUTURE DEVELOPMENT
AG

Inset 1

Outlet to creek to have erosion protection (River Stone)
SWM
Laurel Creek
FOM
AG
Pipe to be installed trenchlessly through natural areas



Legend

- Subject Property
- Existing House to be Removed
- Existing Floodline
- Surveyed Wetland Boundary (GRCA Confirmed June 12, 2023)
- Wetland Buffer (30m)
- Dripline (Dougan & Associates, 2014)
- Dripline Buffer (10m)
- Watercourse Buffer (30m)
- Permanent Watercourse
- Ecological Land Classification (Dougan and Associates 2018)
- Significant Wildlife Habitat

Species at Risk (SAR)

- Candidate Bat SAR Roosting Tree
- Category 2 Blanding's Turtle Habitat
- Category 3 Blanding's Turtle Habitat
- Black Ash
- Black Ash

- Proposed Development
- Limit of Construction
- Limit of Residential Zone
- Proposed Grading
- Proposed Servicing
- Laurel Creek Approximate Edge (surveyed by NRSI June 19, 2024)
- Proposed Trail Footprint
- SWM Outlet/Overflow
- Proposed Swale

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 2520
Date: February 28, 2025

NAD83 - UTM Zone 17
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1:1,250

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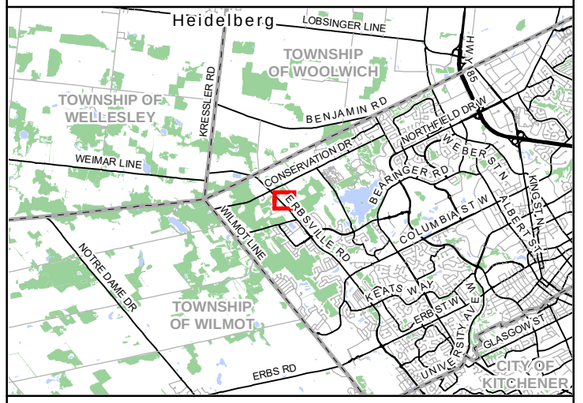
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Map 7

720 Erbsville Road Environmental Impact Study

Proposed Enhancements



Legend

- Subject Property
- Proposed Development
- Limit of Construction
- Limit of Residential Zone
- Proposed Grading
- Proposed Servicing
- Proposed Trail Footprint
- SWM Outlet/Overflow
- Proposed Swale
- Buffer Reduction (0.31ha)
- Buffer Enhancements (0.47ha)
- Buffer Gain (0.01ha)
- Laurel Creek Corridor
- Wideman Creek Corridor
- Existing Floodline
- Surveyed Wetland Boundary (GRCA Confirmed June 12, 2023)
- Wetland Buffer (30m)
- Dripline (Dougan & Associates,
- Dripline Buffer (10m)
- Watercourse Buffer (30m)
- Permanent Watercourse
- Ecological Land Classification (Dougan and Associates 2018)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 2520
Date: February 28, 2025

NAD83 - UTM Zone 17
Size: 11x17"
1:1,600

0 20 40 60 80 100 Metres

N

532000 532100 532200 532300 532400

4814300 4814200 4814100 4814000

ERBSVILLE ROAD
SCHNARR STREET
REGAL PLACE
Laurel Creek
Wideman Creek
SWD7
CUW1
SWM
SWT3-2
ANTH
PARKLAND/ AMENITY
CUT1
AG
FOM
Outlet to creek to have erosion protection (River Stone)
Pipe to be installed trenchlessly through natural areas
SWMF BLOCK
Emergency Outflow
HR
FUTURE DEVELOPMENT

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Appendix I
Agency Comments and Responses

Comment #	Comments	NRSI Response
City of Waterloo		
37	Staff note, that the proposed trail connection has not been fully considered by the updated EIS (see environmental planning comments) nor has it been incorporated into the engineering plans (see engineering comments). In your resubmission, please ensure that the proposed trail connection is fully considered and incorporated into all studies and plans. Staff need to understand whether the proposed trail connection if feasible.	A 3m wide trail has been identified and discussed in the EIS addendum.
41	All plans and studies should be coordinated. Staff have noticed the following discrepancies between the submitted plans, for instance: a) Near Block 11 there is a discrepancy between the Development Limit shown on the Master Plan and the Limit of Residential Zone shown within the EIS b) The Residential Zone Limit (appears to be based on the limit of grading) shown on the Concept Plan (Appendix A) is quite different from the Limit of the Residential Zone identified within the EIS. Additionally, it is difficult the see the Residential Zone boundary on the Engineering Plans, with the Limit of Grading shown in a heavier line weight and the Residential Zone Limit in very light gray that almost disappears into the background. In your resubmission please ensure that all submission materials are consistent and coordinated.	All reports and drawings have been coordinated. The EIS mapping includes current designs from MHBC and JPE.
49	The comment-response matrix notes that a “specific trail alignment has not been shown in the concept plan, however, recommendations for the trail, including alignment and low impact designs, have been included in the revised EIS” and that “a more fulsome impact analysis will be provided through detailed design, once trail grading requirements and exact layout have been determined”. The recommendations for the trail included in the revised EIS (Section 6.4.4) are minimal. Further, the buffer encroachment analysis provided in Section 6.3.1 only addresses the grading associated with the stormwater management facilities and the infiltration swale, not the trail, which could have implications on grading given the need to meet accessibility standards. Also, the recommendation to locate the trail within the outer 5 metres of the buffer, per the Erbsville South Environmental Study, cannot be implemented in the areas where the infiltration swale is proposed within the buffer. Additionally, it is noted in Section 3.2 of the Functional Servicing Report that the proposed development will remain outside of the Regulatory Floodplain with no grading proposed within the floodplain. This statement seems premature since the	The EIS mapping has been updated to show both the 3m wide trail corridor and the swale footprint. The trail is proposed to be located north/northeast of the swales. The impact assessment has been updated to include discussion of the trail footprint in the vicinity of natural features and the associated buffer reductions anticipated. Negative impacts associated with the trail are not anticipated provided that the mitigation measures are incorporated into detailed design.

Comment #	Comments	NRSI Response
	functional grading has not accounted for the trail, and the floodplain appears to be within as little as ~4 metres of the 'Limit of Grading' that is shown on the Functional Grading Plan.	
50	As set out in Official Plan policies 8.2.4(9) and 8.2.5(9), buffers are to remain in a primarily natural state or be restored to a primarily naturalized state if disturbed through historical land use or approved works. Portions of the infiltration swale are proposed to be within the buffer and under Section 6.3.1 of the EIS, it is recommended that the infiltration swale be naturalized with appropriate native species. Will the vegetation within and around the infiltration swale need to be maintained/manicured in order for the swale to function properly? Please advise.	The exact design of the swale will be determined at detailed design, however, as indicated by JPE, a "rain garden" type feature or French drain can be accommodated, which would allow for native species plantings within the swale, providing additional enhancement next to buffer areas.
52	Section 8.2 and 8.3 of the Stormwater Management Report briefly outline the during- and post-construction monitoring programs. As outlined, these programs do not appear to address all the requirements of the City's Development Monitoring Protocol (attached). The 2023 Monitoring Report submitted by Stantec on March 20, 2024 does, however, more accurately reflect the during- and post-construction requirements by stating the following on page 2.1: "The Stage II (during-construction) and Stage III (post-construction) Monitoring Programs will contain the same elements as the Stage I Monitoring Program with the addition of surface water quality monitoring stations at the inlet and outlet of the proposed stormwater management (SWM) facility." As part of the Site Plan process, a Terms of Reference for the during-construction phase will need to be prepared that specifies monitoring activities and locations for all components of the during-construction monitoring program.	A Terms of Reference for the during-construction monitoring program will be provided following detailed design.
53	On page 21 of NRSI's 2023 Pre-Construction Biological Monitoring Report, which is included as Appendix V in the Revised EIS, it is stated that "If subsequent years of monitoring are required, it is recommended that they follow this same methodology with a minimum of one year of pre-construction monitoring, consistent with the City of Waterloo requirements for their Development Monitoring Program (1999, 2020) and the ESES (Dougan et al. 2018), required immediately preceding construction." For reference and transparency, through the 2023 Monitoring Report that Stantec submitted in March 2024, Stantec recommended that the frequency of its pre-construction monitoring program could be reduced to every other year given the length of time the program has been carried out. In response, staff confirmed that provided monitoring occurs during the year immediately preceding construction (i.e. grading), the frequency of the pre-construction monitoring could be reduced to every other year but that as soon as construction (i.e. grading) begins and the monitoring program transitions to the during-construction phase,	Noted. As timing of construction is hard to predict, monitoring may still need to occur annually.

Comment #	Comments	NRSI Response
	monitoring will need to revert back and be undertaken on yearly basis. The response provided to Stantec aligns with NRSI's above-referenced approach. Monitoring efforts between NRSI and Stantec should be coordinated, and as noted in the comment above, as part the Site Plan process, a Terms of Reference for the during-construction phase will need to be prepared that specifies monitoring activities and locations for all components of the during-construction monitoring program.	
65	<u>Vegetation Management:</u> Mature and healthy trees shall be considered as high preservation priorities and must be considered early in the design process so preservation and construction mitigation measures can be successfully employed. Most existing trees on the site appear to be in good condition and the design of the proposed development should prioritize the preservation of mature trees over removal and replacement wherever possible. A Vegetation Management Plan must be undertaken and approved prior to the removal of any vegetation on site. Recommendations from the EIS must be followed.	Noted. Additional text has been added in the EIS addendum to Section 2.3.3 to highlight the need to maximize tree retention.
66	Any tree clearing shall be in accordance with the federal Migratory Birds Convention Act, 1994, and the provincial Endangered Species Act, 2007. Clearing activities shall be completed in accordance with all recommended bird nesting windows, the protection of Species at Risk habitat, and the completed EIS.	Noted. Additional mitigation measures have been identified in the EIS addendum regarding any vegetation impacts for the outlet design. Ground disturbance should not occur within Category 2 Blanding's turtle habitats during the overwintering period; only surface cuts to trees shall be completed, if required. At this time, tree removals have not been identified in these areas; however, this will be confirmed at detailed design.
67	There are conflicts between the development limit, limit of grading, and residential zone limit.	Mapping has been updated to clearly define each limit.
68	The proposed locations of the infiltration swales and spreader swales are shown within the limits of the required buffer. a) Provide additional information about the infiltration swales. The EIS states that infiltration swales should be naturalized with appropriate native species. Confirm that the infiltration swales being vegetated and naturalized with native grasses, shrubs and trees will not interfere with the stormwater function of the swales and can in fact add to the naturalization of the environmental buffer.	a) The exact design of the swale will be determined at detailed design, as stated above. At this stage, it is assumed that some naturalization can occur within the areas where swales are located. c) Maintenance requirements will be determined at detailed design. An updated impact assessment may be required to determine if additional

Comment #	Comments	NRSI Response
	b) Further to the above, the Preliminary Landscape Plan shows trees in the rear yards over the "infiltration swales". Can trees be planted here? c) Please provide information about the required maintenance for the infiltration swales and spreader swales. Please see further comment from Development Engineering. d) Show the limits of any required easements, such as access or maintenance easements. e) As noted in the EIS, an ecological restoration plan shall be provided during detailed design. At this stage, city staff need to confirm that there are no negative impacts (i.e., to the function of buffer or relating to maintenance) of having the swales within the buffer and not strictly within the residential zone.	mitigation measures may be required for associated maintenance. Permanent wildlife exclusion fencing should ensure that no wildlife will be impacted by activities on that side of the fence. e) Impacts associated with the swales are not anticipated. A considerable amount of buffer enhancement (0.47ha) will be provided in the combination of the wetland/watercourse/dripline buffer, which will improve existing condition and mitigate impacts of the adjacent development. See Sections 2.2 and 2.3.1 of the EIS addendum.
70	Include further information on the proposed trails including the 3.0m wide asphalt trail, associated shoulder/mowstrip, and grading. Refer to detail CW-501 found in the CELM for further information. According to the EIS, trails are permitted in the outer 5.0m of the buffer. The accurate limit of grading shall be determined to confirm and ensure that further grading into the environmental buffers will not occur.	A trail envelope has been provided by JPE and incorporated into EIS mapping. See Sections 2.3.1, 2.3.4, and 2.4.4 for discussion of potential trail impacts. Negative impacts are not anticipated provided that the recommended mitigation measures are included.
71	Include the proposed trail alignment on the Proposed Enhancements figure in the EIS. Ensure calculations accurately reflect the buffer enhancement area and buffer encroachment area. Show the limit of grading accurately for the proposed trail.	The mapping has been updated to include the trail.
72	Include trails within the Direct Impacts and Mitigation Measures section of the EIS. Currently only site grading, tree and vegetation removal, impacts to wildlife, and corridors and linkages are discussed.	See Sections 2.3.1, 2.3.4, and 2.4.4 for discussion of potential trail impacts. Trail construction is only considered a potential direct impact for Category 2 and 3 Blanding's Habitat. A net ecological gain will be achieved through buffer enhancements that will increase natural areas within the study area and provide improved wildlife movement corridors. No other natural features or habitats are identified within the trail footprint.

Comment #	Comments	NRSI Response
73	Please note that a comprehensive fencing plan will be required including fencing on the open space side of the trail incorporating any requirements of the EIS such as turtle exclusion fencing. This can be provided as part of the Site Plan submission.	Noted. This will be determined at the detailed design stage and should be determined in coordination with MECP.
Grand River Conservation Authority		
90	The proposed stormwater management (SWM) strategy does not adequately reduce the runoff volume to the wetland. Post-development runoff volume to the wetland is 121% more than pre-development condition. Please revise the SWM strategy and/or EIS accordingly to mitigate wetland impacts.	The EIS addendum provides an updated impact assessment based on the revised SWM report.
91	A feature-based water balance was requested. It appears that changes have mainly been expressed as changes to the site's water balance, with discussion of the scale of the proposed changes as a percentage of the Laurel Creek system. An indication of the change in relation to the adjacent wetland and Laurel Creek's water balance is requested.	The EIS addendum provides an updated impact assessment based on the revised SWM report. It discusses both Laurel Creek and the PSW.