

Comment Response Matrix – JART (In Response to Comments by Dougan & Associates, Dated May 27, 2024, and June 25, 2024)

No.	Section	Comment	Response
1	KEY CONCERN - Impacts and Rehabilitation of Significant Woodlands	<p>Clarification is required regarding the evaluation of significance and proposed removal and habitat replacement of the significant woodland located on the subject property. September 2023 Response: Comment addressed. See the additional information provided in the Specific Comments section below. <b>May 2024 Response: The updated NETR provides updated information regarding the status of the woodland adjacent to Thorold Townline Road based on Provincial and Regional criteria, confirming that the feature is a significant woodland per the Region's Official Plan criteria. The rationale for removal of the woodland and associated impacts to the form and function of the woodland are not clear and/or are not presented. Therefore, the information in the NETR is not sufficient to address the Region's OP policy 7.B.31 (b), requiring that significant woodlands that are removed 'will be replaced, on or off site, with features and functions of equal or greater ecological value'.</b></p>	<ul style="list-style-type: none"> <li>• The following provides additional information in the form of a concise summary of the proposed combination of mitigation, enhancement, and rehabilitation to address the Region's OP policy 7.B.31(b) related to creating habitat with Features and functions of equal or greater ecological value. Careful consideration and effort have been put into the proposed plan to revise and add to the plan in consideration of both JART comments and FN comments. The initiative focus on both flora and the key lifecycle process of fauna that are known to be using the subject property but also or potential species that could use a enhanced environment for greater ecological value, such as for example the inclusion of snake hibernacula, turtle nesting areas away from road shoulders, significant increase in long term interior forest habitat. These examples demonstrate and respect the goal of attaining an environment of "greater ecological value". Firstly, one must understand the existing condition in its entire as an ecological system that functions on the landscape as cohesive unit when the individual components are offered an opportunity to more effectively integrate. The NETR describe the existing conditions and notes that some of the natural heritage conditions that currently exist are fragmented and some components such as roadside turtle nesting habitat can reduce the present hazard to nesting reptiles. This understanding is paramount in the strategies put forward in the mitigation, enhancement, and rehabilitation design to create new equal and in particular habitat types that are also interconnect to support a more functional ecological web of flora and fauna. The subject property in this rural environment offers habitat in an agricultural setting for a variety of flora and fauna. Riparian areas along the existing tributary consisting of marsh, meadow, and thickets. Some of which offer critical life cycle habitat for fauna such as pike spawning. The subject property also includes vegetation communities as record in the NETR that are described as treed habitats, namely a deciduous forest with a mast producing contingency of trees, typically associated deadfall with a shrub understory that provides additional forage and low canopy, near ground fauna protection. With respect to wildlife the property offer fish spawning habitat for pike and tributary habitat for warm water fish species. Mammals include those common on rural landscape such as raccoon, cottontail rabbits, squirrels, transient coyote, and fox as well as deer and bats. The later two are a focus of the enhancement and rehabilitation plan, in consideration of field results and early comments expressed by stakeholder review. The mitigation, enhancement and rehabilitation focus on these habitats and associated life cycle process design in more connected manner to support a wildlife that are connected and allowing for the effective movement of meta populations on the landscape making populations more resilient and viable on the landscape, respecting the principle of connectivity that is paramount in policies associate with contiguous linkage corridors and natural heritage systems. These principles of ecology are well represented and implement into the proposed plan that are comparatively not strong under the current existing conditions. This in itself is notable and a significant advancement (greater ecological value) when one assesses the long-term viability and prosperity of our natural heritage resources both flora and fauna, it is plan of unquestionable greater ecological value from an interconnection, population interaction and linkage perspective (as shown on Figure 14 of the NETR). To offer a understand of the actual components of the overall equal of greater ecological value we offer this summary:</li> <li>• The mitigation, enhancement and rehabilitation are proposed both on-site and off-site as discussed in the NETR.</li> <li>• As part of the proposed Upper's Quarry rehabilitation and enhancement plan, a 20.4 ha forest tract will be provided, the largest in the Regional Assessment Area (1.5 km area radius from the Subject Lands, Figure 1), through immediate plantings off-site and progressive and final rehabilitation on-site as described below (see Figures 13 and 14 attached). The areas of habitat created are provided below. It is not only the size of these habitat that are greater than the existing conditions, the diversity of function that has been incorporated into the design to support and add to the recovery of both flora and fauna.             <ul style="list-style-type: none"> <li>○ Off-site enhancements:                 <ul style="list-style-type: none"> <li>▪ 6.4 ha of deciduous woodland off-site adjacent to the licensed extraction area on Walker owned property including:</li> <li>▪ A proposed 4.0 ha deciduous woodland addition to an existing 14 ha deciduous woodland, situated west of Thorold Townline Road. This addition will provide for the creation of 3.7 ha of interior habitat, which is beneficial to other bird that prefer woodlands with interior forest habitat for breeding.</li> <li>▪ A proposed 2.4 ha deciduous woodland off -site on adjacent lands to the north, contiguous with the existing watercourse downstream of the proposed Natural Channel Design Re-alignment</li> <li>▪ A 0.3 ha coniferous woodland southeast of the quarry</li> <li>▪ Bat maternity roost structures including multi chamber-bat boxes will be installed to encourage maternity roosts and to support habitat for the Little Brown Myotis.</li> </ul> </li> <li>○ On-site Enhancements:                 <ul style="list-style-type: none"> <li>▪ The on-site rehabilitation of the Natural Channel Design riparian valley includes an extensive length of marsh meadow/riparian thicket along the northern section of the Natural Channel Design and dense lowland forest with open canopy vernal and permanent pools within the created wooded area along the southern section of the Natural Channel Design. These on-site features are details as follows.</li> </ul> </li> </ul> </li> <li>• Existing foraging habitat and potential day roost habitat for Little Brown Myotis will be removed during quarry operations, including the Thorold Townline woodland and marsh meadow. This Thorold Townline woodland habitat and marsh meadow are scheduled for In-Situ rehabilitation once quarry stone is removed from below these areas and the Natural Channel Design realignment is implemented.</li> <li>• As noted, the off-site mitigation and enhancement will commence as a first step in the quarry operations prior to removal of any of the on-site features or bat habitat.</li> <li>• Habitat enhancements not only include the long-term addition of more deciduous woodland but also the inclusion of features for key lifecycle process. For examples a number of the pools (15 ) within marsh meadow/riparian thicket and also within the replanted woodlands in the southern portion of the Natural Channel Design (see 13 for Enhancement and rehabilitation and Figure 14 for Pre and Post Extraction Conditions). These habitat features will increase the amount of insect breeding habitat and consequently bat foraging habitat. This aquatic habitat will be located immediately adjacent to the newly create habitat and in the area where long term bat roost habitat will be created and bat boxes (bat maternity boxes – multi-chamber bat boxes) will be installed as part of establishing the Natural Channel Design corridor (see Figure 14 - Pre and Post extraction conditions). The area will also include other wildlife habitat, such as turtle nesting mounds, snake hibernacula, extensive pike spawning habitat, amphibian breeding pools, amphibian summer and overwintering habitat, mammal movement corridors with mast trees and browse shrubs for foraging and an overall contiguous natural linkage corridor (see Figure 14). The talus quarry slopes will provide many crevices for bat day roosting opportunities and the final quarry lake will also provide insect breeding habitat, especially at the lake edge where wetland zones were designed into the Rehabilitation Plan (Aggregate Resource Act Uppers Quarry Site Plans). These wetland zones adjacent to the lake will offer insect habitat and associated bat foraging habitat over the lake and along its periphery. In addition to the note key fish habitat other key species have been an area of focus of the proposed plan such as bats habitat. A summary of the positive enhancements for bats and other wildlife species is shown below:</li> </ul>

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1 cont.	KEY CONCERN - Impacts and Rehabilitation of Significant Woodlands cont.	<p>Clarification is required regarding the evaluation of significance and proposed removal and habitat replacement of the significant woodland located on the subject property. September 2023 Response: Comment addressed. See the additional information provided in the Specific Comments section below. <b>May 2024 Response: The updated NETR provides updated information regarding the status of the woodland adjacent to Thorold Townline Road based on Provincial and Regional criteria, confirming that the feature is a significant woodland per the Region's Official Plan criteria. The rationale for removal of the woodland and associated impacts to the form and function of the woodland are not clear and/or are not presented. Therefore, the information in the NETR is not sufficient to address the Region's OP policy 7.B.31 (b), requiring that significant woodlands that are removed 'will be replaced, on or off site, with features and functions of equal or greater ecological value'.</b></p>	<ul style="list-style-type: none"> <li>○ 4.58 ha of deciduous woodland progressive rehabilitation as part of the on-site Natural Channel Design (lowland forest) that will offer shade and overhead cover to the proposed watercourse, foraging habitat for bats and future maternity and day roost habitat.</li> <li>○ 7.75 ha of wetland along the new Natural Channel Design realignment including: <ul style="list-style-type: none"> <li>▪ 5.89 ha of meadow/ riparian thicket (wetland)</li> <li>▪ 1.86 ha of pond / vernal pools and associated shoreline wetland throughout the Natural Channel Design</li> <li>▪ 1.27 ha creek</li> <li>▪ 0.287 ha of upland woodland, southeast corner of quarry, south of riparian portion of Natural Channel Design.</li> <li>▪ Bat Maternity Roost structures (Multi-chambered) will be installed in the area illustrated on Figure 13. The overall positive effect on bat habitat as it relates to new natural heritage habitat is illustrated on Figure 14.</li> <li>▪ It is important to note that the above-described enhancements are all part of the legislated Site Plans that are regulated by MNR through the Aggregate Resource Act License and require compliance. Similarly, the off- site plantings that will be initiated as part of the Site Preparation notes requirements found on the once approved ARA Upper Quarry Site Plans and will be completed prior to the removal of the 2-ha woodlot on-site.</li> <li>▪ In summary the description of habitat inclusions and associated lifecycle functions they support and enhance, directly related to the vegetive and feature diversity (turtle nesting, snake hibernacula, fish spawning, bat maternity structures, deer foraging, deer protection, and the creation of all these extensive in a contiguous natural linkage corridor which is lacking in the fragment environment, distinctly demonstrates the compliance with the Region's OP policy 7.B.31 (b), requiring that significant woodlands that are removed <i>'will be replaced, on or off site, with features and functions of equal or greater ecological value'</i>.</li> </ul> </li> </ul> <p>See also comment Response #14 which offers reference to Table 10-3 of the revised NETR which provides a summary of net impacts that lists all impacts, avoidance strategies, mitigation strategies, and enhancement strategies, followed by the expected net result (e.g., positive, negative, unchanged) and an indication of the scale of the net result, that is include in table 10-3 Of the revised NETR.</p>
2	KEY CONCERN - Fish habitat	<p>The regional significance of Northern Pike spawning in the watercourse that crosses the property has not been assessed but clearly the spawning habitat has significance that extends beyond the immediate study area. The watercourse is accessible to fish from an extensive area of aquatic habitat that is suitable for adult Northern Pike. Investigations to determine the number of Northern Pike that enter this watercourse to spawn and to determine if Northern Pike from the downstream habitats spawn in other locations could provide regional context and allow the scale of potential effects to be assessed. September 2023 Response: Comment partially addressed. The response does not specifically address the abundance of Northern Pike that spawn within the watercourse that it is proposed to be moved or the abundance of Northern Pike spawning habitat elsewhere. The response indicates that Northern Pike habitat will be more abundant, and that the habitat will be more productive for Northern Pike after the watercourse realignment. <b>May 2024 Response: Comment partially resolved. The response does not address the abundance of Northern Pike that spawn within the watercourse that it is proposed to move or the abundance of Northern Pike spawning habitat elsewhere. The NETR has been revised to address the presence of potential spawning habitat elsewhere, however; no observations of spawning or attempts to determine if spawning occurs in those locations are reported.</b></p>	<p>The discussion surrounding the examination of pike spawning habitat in the Unnamed Tributary, the annual abundance of spawning pike in the Unnamed tributary, the presence and abundance of pike spawning habitat outside of the Subject Lands, both in the Unnamed Watercourse and in other systems in the Region, has been circulated in several iterations of peer review comments and responses. The following is a consolidation of responses throughout the review process.</p> <p>With respect to the examination of the Unnamed Watercourse in a regional context, a review of background information on fish and fish habitat for areas outside of the primary study area was undertaken to provide context to the Study Area observations. Based on a review of Ministry of Natural Resources and Forestry (MNR) as well as Fisheries and Oceans Canada (DFO) GIS platform mapping, there is a general lack of background fisheries data available, particularly as Aquatic Resource Area Survey Points, in the general regional area beyond the Study Area. The <i>Beaverdams and Shriners Creek Watershed Plan, Phase One Watershed Characterization and Preliminary Issues Identification</i> report (NPCA 2011) provides some information on species presence in these systems, but it is primarily summarized on a whole subwatershed basis rather than as sampling station records.</p> <p>Pike spawning activity in suitable habitat has consistently been noted, confirmed, and identified as important on the Subject Property, and it has been assumed to occur in the Unnamed Watercourse upstream of the Subject Property. In the future scenario, free fish passage will remain through the Subject Property, and it is expected that pike will continue to move into reaches upstream of the Subject Property if they are inclined to do so. Therefore, the current abundance of pike spawning habitat upstream of the Subject Property will not change.</p> <p>In previous submissions, pike spawning habitat availability has been discussed in the context of other locations in adjoining subwatersheds, including Beaverdams Creek, into which the Unnamed Watercourse flows, and Shriners' Creek, which is a connected subwatershed located immediately north of the Beaverdams Creek subwatershed. The lower reaches of Shriners' Creek and Beaverdams Creek are connected to each other via a wide cut extending north-south along the west side of Davis Road (Highway 58). The lower reaches of each of these subwatersheds are lacustrine environments that provide more substantial, stable, and permanent holding water than the many tributaries that feed into both creek systems. Both of these subwatershed areas are characterized by a number of smaller tributaries with shallow marshy channels or channel sections. Any of these tributary sections could provide potential pike spawning habitat; however, the habitat productivity in these shallow marshy habitat systems may be limited by the flashiness of the flow regime that varies on annual basis depending on snow melt and spring precipitation and the onset of intermittent flow conditions. Shallow wetland habitat is available in abundance along the margins of the lacustrine lower reaches of both Beaverdams and Shriners' Creeks and likely provides a more stable habitat environment on an annual basis given the backwater influence provided by the water levels in the Welland Canal. Regardless, it has been recognized that typical pike spawning habitat is available throughout both subwatersheds, in upper and lower reaches of each system. Reconnaissance-level observations while driving around these areas, coupled with a review of aerial photos identifies the abundance of potential pike spawning habitat visually. To confirm the use of these areas by spawning pike would require examinations of numerous locations throughout these subwatersheds, primarily at roadside crossings due to available access, and would need to be reliant on the exact timing to observe pike in the act of spawning. Such an effort may require several visits as there are no guarantees that the act will be caught on any given day. Further, the act of spawning or even simple observation of pike does not contribute to quantifying spawning success and recruitment.</p> <p>With respect to determining the abundance of Northern Pike that spawn within the Unnamed tributary, we have previously indicated a reluctance to perform such surveys during the actual pike spawning period due to the intrusiveness of sampling methods. To determine abundance of spawning fish properly would require the capture, typically through netting or electrofishing, of migratory or spawning fish. During migration, these fish are in a "ripe" condition, meaning that the gonads are full of eggs or sperm (gametes). Capture of fish can induce stress that may lead to death in the worst case, or physiological changes such as spawn avoidance and retention of gametes or a reduction in the quality of gametes. If fish have already spawned, in-stream activity could disrupt areas where eggs have been deposited, which would be a post-spawn impact. Both pre- and post-spawn sampling activities could potentially affect year class recruitment of pike, and of other species that may be part of the by-catch when pike are being targeted.</p> <p>The proposed channel realignment has been designed to provide habitat elements specific to the life cycle processes for Northern Pike including an increase in available spawning habitat, improved rearing and refuge habitat provided by a greater number of deeper pools, which are currently a limiting habitat feature. A net gain in overall fish habitat will be achieved through the habitat design of the new channel and the habitat elements incorporated specifically for Northern Pike are expected to result in a net gain in habitat productivity for the species.</p> <p>The Project will require review under the <i>Fisheries Act</i> by DFO and will likely require an Authorization under the Act. DFO is the responsible Authority for assessing fisheries impacts from development and approving the rehabilitation designs of replacement fisheries habitat and have been engaged in pre-consultation regarding the elements of the natural channel design including spawning habitat. The watercourse realignment plan and existing information will be reviewed by DFO and a final decision on the acceptability of the design, as well as monitoring requirements to measure future productivity will be determined through ongoing consultation with DFO as the authorization process progresses.</p>

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3	Section 3.2 (FIELD SURVEY METHODS) pg. 3.2	<p>It is noted in Table 3.1 that no dedicated Turtle surveys were conducted either on the Subject Lands or within the RAA. Given the proximity of larger wetlands to the north and the ability of turtles to move through the landscape while moving from wetland to wetland or in search of nesting habitat, please explain why no surveys were conducted, especially as it relates to potential Species at Risk and the identification of Significant Wildlife Habitat. It is noted that during the technical meeting held on March 30<sup>th</sup>, 2022, the applicant's consultant confirmed that turtles were observed along the watercourse on the subject property. These records have not been included in the Natural Environment Technical Report and Environmental Impact Study. Please address. September 2023 Response: Comment partially addressed. Although discussion regarding turtle surveys was inadvertently omitted from the original NETR report, additional information was provided in the August 2023 update. As per Section 3.2.5.1, turtle basking surveys were completed on site on April 4, May 3, May 9, May 17, and May 30, 2017. It is also noted in Section 3.2.5.2 that following receipt of JART/agency comments, six turtle nesting surveys were completed in late June 2023. However, neither section indicated what areas received survey coverage and why, limiting the ability to assess the robustness of the findings. Similarly, neither section included a description of how the surveys were actually completed, but rather indicated that the surveys followed the <i>Blanding's Turtle Nest and Nesting Survey Guidelines</i> (MNR, 2016). At a minimum, a condensed version of how the surveys were carried out, that is specific to the study area, should be provided to ensure that the protocol was appropriately interpreted and applied. Finally, Table 3-1 continues to omit any mention of the turtle basking surveys. The missing information should be provided for review and completeness. Please address.</p> <p><b>May 2024 Response: Additional information required. New information was provided in the April 2024 NETR indicated that all areas of suitable nesting habitat were walked, including the edge of the agricultural fields along the entire length of the watercourse. Given that any nesting turtles would most likely originate from the watercourse, this was appropriate. In addition, given that it is about 3.5 km to walk down one side of the creek (along the edge of the agricultural field) and back up the other side, the average survey length of just over 3 hours seems reasonable. However, upon closer review, the surveys conducted were not entirely consistent with the <i>Blanding's Turtle Nest and Nesting Survey Guidelines</i>. Four of the six surveys began 30 minutes or more before the recommended start time of 6:00 p.m. More importantly, instead of conducting the 6 visits over a three-week period (as recommended in the guidelines), all six surveys were conducted over a 10 day period, therefore limiting surveys to only about 50% of the expected nesting window, and all occurring within the latter half of the survey window. In summary, although considerable efforts were expended conducting the turtle nesting surveys, some deficiencies were noted that could have potentially negatively affected the results documented. Additional information in support of the surveys conducted is welcomed.</b></p>	<p>Surveys were started prior to the 6:00PM timing window due to safety concerns associated with walking along roadways and rivers at night. This minor deviation is not anticipated to affect results. As noted, surveys lasted approximately 3 hours.</p> <p>While the survey period did not extend over the full 21 days recommended by the draft protocol, it was conducted during the peak of the 2023 turtle nesting season for the area according to Stantec's professional opinion. The decision to truncate the survey period was based on our estimate of the timing window with the highest probability of detection.</p>

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4	Section 3.2.8 Headwater Drainage Feature Assessment pg. 3.12	<p>Please provide a reference for the headwater drainage features (HDF) guidelines that the timing of site visits is stated to be consistent with. If the reference is to the CVC and TRCA guidelines (finalized in 2014), which are referred to in Section 3.3.5, please explain how the timing of the site visits was consistent with the timing recommended by the HDF guidelines. September 2023 Response: Comment partially addressed. It is agreed that site visits on April 14, 2017, and April 9, 2021, are consistent with Site Visit 1 of the guidelines. The site visit on June 22, 2017, does not conform with the guideline for Site Visit 2, which is described in the guidelines as typically occurring from late April to mid-May. The primary purpose of the second site visit is to determine if flow or standing water is present at that time and, if either is, fish sampling is recommended to determine if there is seasonal fish use of the feature. The hydrological condition during the second visit is key to determining whether a feature that is dry during the third site visit is ephemeral or intermittent, which affects its classification. <i>“As the guidelines state, ephemeral features which provide contributing functions “are typically dry or surface-damp by mid-May”.</i> With no observations between early April and June 22, it is not possible to make that determination. Please address. <b>May 2024 Response: Comment partially resolved. If it was documented that the features were dry by mid-May during snake coverboard checks, whether or not the visits were recorded as ‘official’ headwater drainage feature assessment visits would be of little consequence. Note that if flow is present in late April – mid-May electrofishing is recommended to determine if fish are present. It is true that if the hydrology classification changed from “contributing” to “valued”, the management recommendation would not change, however, if fish were present the management recommendation would change to either “conservation” or “protection”.</b></p>	<p>Headwater drainage feature assessments (HDFA) were repeated in 2024 on the following dates: April 26 and May 21, 2024. These dates are representative of the first and second visits within the recommended timeframes for each visit according to CVC/TRCA guidelines. Most features were dry or exhibited minimal standing water during the visit on April 26. All features were completely dry and planted through on May 21. The 2024 observations corroborate the observations of previous surveys in multiple years and confirm the management recommendations that were summarized in the NETR and EIS.</p>
5	Section 5.9 Headwater Drainage Feature Assessments pg. 5.12	<p>#21. Headwater drainage feature classification, as presented in CVC and TRCA (2014) and Section 3.3.5 of this EIS, is based on up to three site visits with the first typically occurring in late March to early April. A second visit is made during late April to early May if necessary, and a third visit is made during the July-mid-September period if necessary. Please explain how data from a site visit in early April (in two years) and a site visit in late June provides the information required to determine the classifications. September 2023 Response: Comment not addressed. A June 22 site visit is not consistent with the recommended late-April – mid-May timing for the second site visit. Please address. <b>May 2024 Response: Comment partially resolved. Please see the response to Comment 15.</b></p>	<p>Please see the response to Comment 15.</p>

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6	Section 6.2.2 Assessment Based on NROP Criteria pg. 6.6	<p>According to the analysis presented in Table 6.3, “the woodland on the Subject Property along Thorold Townline Road would be considered a Significant Woodland from a policy perspective and would become a regional Environmental Conservation Area, per Policy 7.B.1.4 of the Region of Niagara Official Plan.” However, given this status, additional clarification is required to rationalize the recommendation for removal and habitat replacement of this feature. September 2023 Response: Additional discussion warranted. Although additional information was provided in the Response matrix explaining why the removal and replacement of the woodland as proposed would represent an overall net ecological benefit, removal and replacement warrants additional discussion in the context of negative impacts to the feature and its functions, including Significant Wildlife Habitat. Specific details regarding all species occurring within the woodland should be clearly documented – please provide the raw data for vegetation surveys, ELC, and any wildlife observations.</p> <p><b>May 2024 Response: Comment not resolved. The response and updates in the Natural Environment Report provide additional policy considerations that rationalize the removal of the woodland patches 9a and 9b based on size and function. As currently presented, the information included in Section 8.3 is insufficient to determine compliance with the Region OP Policy 7.B.31 (b), particularly relating to the test of whether or not rehabilitation ‘will be replaced, on or off site, with features and functions of equal or greater ecological value’. Primarily this relates to the Region not being provided with specific Ecological Land Classification data and associated species lists (per the agreed Terms of Reference). The information provided in Section 8.2.1 relating to ‘potential impacts’ identifies the woodland patches as being compromised and refers to non-native species such as garlic mustard, Tatarian honeysuckle, and common privet. This contrasts with information included in Table 5.1 (ELC Vegetation Types) that identifies the woodland patches as mid-aged to mature forests with a sub-canopy and understory composed of predominantly native plant species. As removal of the woodland has been rationalized from a policy perspective based on its size, specific data that are used to establish the Ecological Land Classification summary should also be used in Section 8.3 to document specific feature characteristics such as the species present, species relative abundance, size, age, and the associated ecological functions that will be affected; subsequently, these data should be used to clearly show how the proposed rehabilitation achieves equal or greater ecological value (e.g. aligned with information provided in Table 8-3). This is particularly important as specific details regarding the timing of ELC and botanical site visits, and the associated data collected, have not been provided as part of the Natural Environment Report submission.</b></p>	<p>Using ELC data as means to establish a rehabilitation and enhancement plan is one method that can be employed to design a plan and monitor that plan. The ELC cards are provided as an attachment to this response document. In addition, a supplemental ELC verification survey was conducted in 2024 as noted in NETR Revision 3. The ELC data offers clarity to the noted comments concerning the inconsistency of botanical descriptions.</p> <p>An Environmental Monitoring Plan as outlined in Section 12 of the revised NETR report and as required on ARA Site Plan Drawing 4 of 6, will be further developed in consultation with various stakeholders, government agencies and Indigenous communities. the proposed use of the noted ELC related parameters and associated ecological function can be incorporated in the refinement of the monitoring plan in consultation with stakeholders, government agencies and Indigenous communities.</p>

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7	Section 6.7 Significant Wildlife Habitat pg. 6.12, Appendix B, Table B-2	<p>According to text, Table B-2, Appendix B provides a detailed assessment using the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E.</p> <p>a.- Re: the discussion about the Turtle Nesting Areas SWH type, it states <i>“Suitable habitat for turtle nesting is present on the road shoulders and in agricultural fields, however anthropogenic features do not qualify as significant wildlife habitat.”</i> However, the statement regarding agricultural fields is incorrect. There is no such exemption for agricultural fields. Therefore, given the close proximity of the agricultural fields to the watercourse bisecting the Subject property, and the fact that no turtle nesting surveys were conducted in support of the application, it is premature to conclude that Turtle Nesting Habitat SWH is absent. Please address. September 2023 Response: Comment partially addressed. Please see the September 2023 comment for Specific Comment #1. Until additional information is provided for review that indicates how the turtle nesting surveys were carried out, the conclusion that Turtle Nesting Habitat SWH is absent may not be justified. Furthermore, the statement that <i>“The agricultural field is not considered preferred nesting habitat due to the high density of vegetation cover (i.e. winter wheat) during peak breeding season and the likelihood for nest disturbance and loss by agricultural equipment.”</i> unnecessarily diminishes its significance as nesting habitat on the subject lands since the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E does not distinguish between preferred and non-preferred nesting habitat. Turtles are opportunists, often using whatever suitable habitat is available. It is also worth noting that according to Section 5.3.2: <i>“In 2019, agricultural fields on the Subject Property were planted with soy.”</i> Therefore, the reference to winter wheat doesn't appear to make sense. Also, soy tends to allow more sunlight to penetrate to the ground than winter wheat, increasing the likelihood that the agricultural fields would be used for turtle nesting. Please address and revise the affected text. <b>May 2024 Response: Comment partially resolved. See May 2024 response to comment 1.</b></p>	Additional information and summary have been provided in response # 1 and #3 that are instrumental in providing the response details to address the outstanding comment.
8		<p>d. - Re: Snapping Turtle (Species of Conservation Concern), please indicate if any dedicated surveys to document this species along the creek were conducted or whether the statement that <i>“...the species was not observed during the 2017 or 2019 field investigations”</i> was based on incidental observations only. Table 3.1 does not indicate that any dedicated surveys were conducted. September 2023 Response: Comment partially addressed. New information was provided in the updated NETR indicating that turtle basking surveys were completed on site in the spring of 2017. However, text in Section 3.2.5.1 does not indicate what areas received survey coverage, limiting the ability to assess the robustness of the findings and the conclusion that Snapping Turtle SWH is absent. It is also noted that the Snapping Turtle text in Table B-2 has not been updated to reflect the fact that the 2019 field investigations were incidental in nature, thereby limiting</p>	Acknowledged. As Dougan & Associates is well aware, survey timing windows and weather conditions do not always align to provide perfect conditions. However, air temperature was higher than water temperature on site, which is one favourable condition for turtle basking. Table B-2 alludes to the 2023 surveys: "Evidence of turtle nesting was observed on Upper's Lane but not in or adjacent to agricultural fields".

No.	Section	Comment	Response
8 cont.	Section 6.7 Significant Wildlife Habitat pg. 6.12, Appendix B, Table B-2 cont.	<p>their value, or that additional turtle nesting surveys were conducted in 2023 that documented evidence of nesting along the road shoulders. Even though turtle nesting along municipal road shoulders is not considered SWH, it does confirm the overall presence of turtles within the subject lands. Finally, the NETR does not acknowledge the turtle observations that were made along the watercourse on the subject property. These were noted during the March 30th, 2022, technical meeting. Additional information regarding the extent of the turtle basking turtle surveys conducted in 2017 is requested, as well as a full accounting of the turtle observations made along the watercourse. <b>May 2024 Response: Comment partially resolved. Most of the field surveys conducted to document turtle presence, including Snapping Turtle, were conducted according to protocol. However, one of the five basking turtle surveys was conducted under 100% cloud cover and a trace of rain, conditions resulting in very low detectability, which would compromise results. Despite this deficiency, the response matrix indicates that the Natural Channel Design (NCD) Planting Plan includes many pond areas for basking and a number of nesting mounds in the vicinity of the proposed new creek alignment. These are viewed as mitigation measures/enhancements. Finally, the contents of Table B-2 were not updated to accurately reflect the survey work conducted.</b></p>	
9		<p>e. - Re: Common Nighthawk (Species of Conservation Concern), please provide additional justification why suitable nesting habitat is absent in the Study Area. The nesting habitat description provided is misleading. According to Sandilands (2007), in Cadman et al., (2007), <i>"In the agricultural south, it has nested in grasslands, agricultural fields, gravel pits, prairies, and alvars and airports."</i> September 2023 Response: Comment partially addressed. According to the response provided in the response matrix:</p> <p><i>"Uppers quarry area is mainly agricultural land and the presence of nighthawk in the peripheral type habitats would not be considered SOCC. This agricultural type of habitat is widely distributed and abundant in the study area and in the Region of Niagara as such these fields would not be considered SWH."</i></p> <p>However, according to the "Special Concern and Rare Wildlife Species" SWH criterion (OMNRF, 2015), no Candidate ELC Ecosites are excluded from consideration, nor are any given preferential treatment due to their abundance in the landscape. As such, agricultural habitats should not be automatically discounted or worse yet, excluded from surveys. Nevertheless, and despite the above description of which habitat types qualify for consideration, it is Sandilands' (2010) opinion that <i>"In</i></p>	<p>As previously noted in several rounds of review, Stantec considers Common Nighthawk unlikely to be present on site due to a lack of exposed/ patchy substrate that is generally considered suitable for nesting. (i.e., the agricultural fields on site are intensively farmed with winter wheat and soy; and ground cover is subject to heavy disturbance from farming equipment and/or densely vegetated during Common Nighthawk breeding season). It is noted that these same conditions, which Dougan &amp; Associates considers insufficient rationale to exclude Common Nighthawk from the site based on existing conditions, are now being presented as a barrier to establishment in post-operational designs. Stantec is of the opinion that potential nighthawk breeding habitat offered through natural channel design and mitigation will be superior to existing conditions for this species, which is unlikely to be present.</p>

No.	Section	Comment	Response
9 cont.	Section 6.7 Significant Wildlife Habitat pg. 6.12, Appendix B, Table B-2 cont.	<p>southern, off-Shield Ontario, the Common Nighthawk appears to have almost abandoned nesting in natural forest clearings and rural areas; most nesting occurs in cities or communities where there are flat roofs." As such, it is acknowledged that the likelihood of Common Nighthawks nesting in the agricultural fields on the subject lands is likely low, and the absence of dedicated surveys conducted in search of the species can be ignored, if suitable nesting habitat for the species can be provided on site, during and post quarry operation. <b>May 2024 Response: Comment not resolved. The response matrix indicated that "Common Nighthawk habitat is effectively added to the Natural Channel Design in the riparian/meadow grasslands proposed."</b> However, upon review of the riparian meadow and upland meadow planting zone seed mixes (see Natural Channel Design in Appendix E), it is expected that these areas will fill in and result in dense cover, severely limiting suitability as potential nesting habitat since Common Nighthawks tend to select bare surfaces on which to lay their eggs. In fact, text in Section 4.10 of the Natural Channel Design goes so far as stating that the intended goal of the riparian planting design is the gradual successional spread of trees and shrubs within the corridor. It is also noted that the riparian areas may be subject to periodic flooding, again reducing their suitability. Furthermore, the upland habitats mostly correspond to the side slopes of the watercourse valley, again generally rendering the habitats unsuitable, since Common Nighthawks tend to select flat surfaces on which to lay their eggs. To increase the chance of creating suitable nesting habitat, it is recommended that five to ten dedicated nesting beds be constructed within the realigned watercourse corridor, offering a mix of locations to choose from. To be considered suitable, the nesting beds should be on flat surfaces such as bare rock, sand, or gravel, or on soils where leaves or conifer needles from adjacent vegetation can cover the ground. Sizing of the nesting beds should be researched to ensure their adequacy. The locations of the nesting beds should be added to the drawings and notes.</p>	
10		<p>Text on page 6.11 or Table B-2 (Appendix B) does not adequately justify why breeding habitat for Eastern Wood-Pewee is absent on the Subject Property. An Eastern Wood-Pewee was recorded in the woodland along Thorold Townline Road on June 14, 2019, when bat acoustic monitors were deployed but not on June 25, 2019, when monitors were collected. Given that (1) this woodlot was not monitored for breeding birds in 2019, (2) wind speeds exceeded the recommended maximum to document breeding birds for the majority of June 25, 2019, and (3) less time was spent within the woodlot removing the monitoring equipment than setting it up, it is reasonable to assume that the habitat was suitable for breeding. This is consistent with the conservative approach applied to the Breeding Bird Survey methodology (see Section 3.2.3 on page 3.5). Please provide justification to support the position that the woodland along Thorold Townline Road did not provide suitable breeding habitat for Eastern Wood-Pewee in 2019. September 2023 Response: Comment</p>	<p>Per responses in the first 2 rounds of review, this species was not detected during three rounds of focused breeding birds surveys in the woodland (June 12, 2017 June 22, 2017 and July 5, 2017). It was recorded as an incidental observation in June 2019 (when bat acoustic monitors were deployed). Breeding habitat for Eastern Wood-Pewee is deciduous or mixed woods, often near forest edges or clearings (Cadman et al. 2007). It was also recorded on transect 2 on June 7, but not on June 22, 2012. The requested memo is attached to this response.</p> <p>Stantec is of the opinion that the breeding bird surveys completed in 2017, which meet OBBA standards to assess breeding bird presence, are useful and valid for this purpose.</p>



No.	Section	Comment	Response
10 cont.	Section 6.7 Significant Wildlife Habitat pg. 6.12, Appendix B, Table B-2 cont.	partially addressed. Additional justification was provided. It is acknowledged that Eastern Wood-Pewee was not documented from the woodland along Thorold Townline Road during the 2017 breeding bird surveys. However, that does not discount the fact that it was documented there more recently in 2019, which at the very least suggests that it is suitable habitat. Furthermore, given the significance of the observation, please explain why additional breeding bird survey visits to the woodland were not carried out in 2023 to help confirm whether the bird was present. In absence of additional breeding bird surveys having been conducted, it is assumed that the woodland provides suitable habitat and is SWH for Eastern Wood-Pewee. <b>May 2024 Response: Comment not resolved. The 2017 breeding bird survey results are not in question. However, they do not diminish the significance of the more recent 2019 Eastern Wood-Pewee observation which was made during the height of the breeding season. Furthermore, the fact that the 2019 observation was made incidentally does not make it invalid. It is also noted that text in Appendix C (i.e., Attachment 2, Table 1) states: "One signing male was confirmed on site in suitable habitat during 2012 field investigations (Stantec 2012e)." Given that the habitat was suitable in 2012 and 2019, the woodland is considered SWH for Eastern Wood-Pewee. Please provide Stantec Consulting Ltd.'s 2012 "Walker Upper's Lane Quarry – Niagara Region Breeding Bird Survey 2012 (memo)" for review. In addition, please update the text in Section 4.6.5 to acknowledge the presence of this Species at Risk. It appears that this was the only significant bird species not mentioned.</b>	
11	Section 5.8 Incidental Wildlife Observation pg. 5.11	During the technical meeting held on March 30th, 2022, the applicant's consultant confirmed that turtles were observed along the watercourse on the subject property. These observations have not been included in the Natural Environment Technical Report and Environmental Impact Study to date. Please address. <b>May 2024 Response: Comment not resolved. The objective of the comment was to clarify the location(s) of the confirmed turtle observations, not whether or not turtles were present. As noted previously, there was a unequivocal statement made during the first technical meeting that turtles were observed in the existing watercourse, and that the habitat created in the realigned channel would address any impacts to turtles and their habitat. In part, the assertions of this conclusion were premised on the expertise of Ms. Cameron, who is a recognized expert in turtle conservation, but had recently left Stantec.</b>	As previously noted, this statement was made erroneously, and no turtles were observed along the watercourse.
12	Section 6.6 Fish Habitat pg. 6.11	This section describes conditions but does not provide an assessment of the significance of the existing watercourse from a fish habitat perspective. Based on the reported field observations, this watercourse provides spawning and nursery habitat for Northern Pike. Adult Northern Pike migrate into this watercourse to spawn in the spring and presumably migrate back downstream after they have spawned. No investigations were conducted to determine the number of adults moving into the watercourse to spawn or the number of young-of-the-year that move downstream after they hatch. The fact that adults migrate into the watercourse from downstream to spawn indicates that the	Please see the response to Item No. 12: Key Concern – Fish Habitat for a consolidated response on this information item.

No.	Section	Comment	Response
12 cont.	Section 6.6 Fish Habitat pg. 6.11 cont.	<p>significance of the watercourse extends beyond the study area. Its significance at a regional scale will depend, in part, on the proportion of regional pike spawning habitat that this watercourse provides. September 2023 Response: Comment partially addressed. The response indicates that collecting additional data is not necessary (emphasis ours) because it might inadvertently affect spawning activities or young of the year and because of the limited effectiveness of methods available. In the absence of any information regarding numbers of spawning fish, numbers of young-of-the-year produced, or the availability of other spawning areas, it is not possible to know how significant this watercourse is to the regional fish community and pike population(s). Furthermore, in the absence of baseline data it will not be possible to assess the effectiveness of the proposed habitat creation, except in qualitative terms. The response seems to imply that there is no need for this knowledge because Northern Pike spawning and nursery habitat will be improved and that, based on pre-consultation, Fisheries and Oceans Canada supports the proposed design. Documentation of pre-consultation with Fisheries and Oceans Canada has not been provided. Please provide. <b>May 2024 Response: Comment not resolved. Documentation of pre-consultation with DFO was not provided.</b></p>	
13	Section 6.7 Significant Wildlife Habitat pg. 6.12	<p>Under the Seasonal Concentration Areas heading, the text indicated that the woodland on the east side of Thorold Townline Road was considered Significant Wildlife Habitat (SWH) as a Deer Winter Concentration Area. However, there is no mention of Bat Maternity Colony SWH, yet the text in Table 6-3 (Section 6.2.2) state <i>"The woodland contains Significant Wildlife Habitat for Bat Maternity Colony and Deer Winter Concentration Area."</i> The data included in Table 5-4 (Section 5.6.2) for Big Brown Bat and Silver-haired Bat appears to support that conclusion. Please include acknowledgement of this in this section as well as Section 8.5. In addition, please correct the conclusion for Bat Maternity Colonies in Table B-2 (Appendix B). Instead of <i>"Absent"</i> it should read <i>"Present"</i>. <b>May 2024 Response: Comment partially resolved. Additional text was included in this section acknowledging that a Bat Maternity Colony is present in the "area". While the statement is not inaccurate, it does however, unnecessarily avoid naming the Thorold Townline Road woodlot as the most likely location for the bat maternity colony. In absence of any additional data suggesting otherwise, the text should be revised to reflect the most likely location of the bat maternity colony.</b></p>	<p>The MECP is the Ontario authority with respect to SAR and bats. An IGF was submitted to the MECP detailing the results of the acoustic findings. The MECP conclusion is summarized as: <i>"based on the Ministry's review of the project documentation and information provided, the conclusions that neither sections 9 nor 10 of the ESA will be contravened for species identified (namely SAR BATS) appear reasonable and valid and therefore authorization is not required"</i>.</p> <p>The MECP notes, that tree removal should not take place during the active season for bats, April 1 – September 30, which will be implemented through a requirement on the ARA Site Plans.</p> <p>The rehabilitation and restoration plan respects the opportunity to enhance bat habitat and foraging habitat, this includes the inclusion of multi-chambered bat boxes as well as diversity of foraging habitats both in the NCD riparian corridor and in the long term in the eventually complete rehabilitation of the quarry that includes not only cliff face and talus slopes for roosting but wetland edges along the quarry lake. All this foraging habitat is contiguous or encompassing the proposed maternity roost locations allowing maternity females to forage effectively in the immediate vicinity of roost, this is beneficial as the lactating females will spend less time travel to a foraging site expanding less energy and expected to provide an enhanced scenario for reproductive success. This collective plan is beneficial to the short and long-term Recovery Strategy for bats in the region.</p> <p>See also comment response #16 concerning the inclusion. The additional bat maternity structure to the enhancement plan.</p>
14	Section 8.5 Significant Wildlife Habitat [Assessment of Impacts] pg. 8.27	<p>Section 8.5.1 is titled Potential Impact. However, given that the woodland on the east side of Thorold Townline Road, acknowledged to support provincially Significant Wildlife Habitat, is proposed for removal, the heading is inappropriate. Rather the removal of the woodland would represent a direct and permanent impact. Section 2.1.5 of the Provincial Policy Statement (PPS) also states: <i>"Development and site alteration shall not be permitted in: ... d) significant wildlife habitat ... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions."</i> Furthermore, Section 8.5.2.1 (Mitigation Recommendations for Woodland</p>	<p>Table 10-1 has been added to EIS revision 3 to summarize the impact assessment, mitigation, and proposed enhancements as applied to natural heritage features on the Subject Property. This table includes a description of the feature, anticipated impacts, avoidance and mitigation strategies, enhancement and rehabilitation, net results, and scale of net results.</p> <p>With respect to off-site mitigation, we have provided a comprehensive response in our April 2024 re-submission responding to JART Comments in the comment/response matrix for Appendix 1 comments. The Region is copied on comments from MNRF on the proposed ARA Site Plans wherein no concern with off-site mitigation has been raised. MHBC have also spoken with MNRF and confirmed their acceptance of the approach provided.</p>

No.	Section	Comment	Response
14 cont.	Section 8.5 Significant Wildlife Habitat [Assessment of Impacts] pg. 8.27, cont.	<p>SWH) states: “As described in Section 8.2.2, woodland compensation<sup>1</sup> planting will occur on 4 ha of land west of Thorold Townline Road and adjacent to an existing 14 ha woodland of similar species composition and structure.”</p> <p>Despite the section heading (i.e., Mitigation Recommendations for Woodland SWH), what is being proposed is not mitigation, but rather compensation (i.e., replacement of damaged habitat). However, compensation is not an accepted option available in the PPS when it comes to reducing or eliminating negative impacts. Not only is compensation is not mentioned in the PPS, but it is also only mentioned once in the Natural Heritage Reference Manual<sup>2</sup>, and specifically in relation to a HADD (i.e., the harmful alteration, disruption, or destruction of fish habitat). Please revise the text/tables/figures in this section and all other applicable sections as appropriate, to reflect the discussion above and its implications to the proposed extraction scenarios. <b>May 2024 Response: Comment not resolved. The Response Matrix indicates that “The report has been revised to more concisely address this matter with regard to the woodland assessment and the PPS which must be read in its entirety.” However, the NETR should still acknowledge real impacts, such as the proposed removal an entire woodlot, even if it ultimately considers the impacts to be adequately mitigated. As it stands, Section 8.5.1, titled, “Potential Impact”, does not accurately describe what is being proposed. This can be addressed by providing a summary of net impacts that lists all impacts, avoidance strategies, mitigation strategies, and enhancement strategies, followed by the expected net result (e.g., positive, negative, unchanged) and an indication of the scale of the net result, if applicable. In addition, the Region should be provided copies of correspondence with Province where they explicitly state that off-site mitigation is an acceptable option with respect to the proposed loss of the woodland.</b></p>	
15	Site Plans	<p>Site Plans 2 and 3: It is not clear why some existing features are shown, and others are not. For example, the existing watercourse is shown, but wooded features and Significant Wildlife Habitat are not shown. Please include. <b>May 2024 Response: Comment partially resolved. Drawing 1 of the site plan was updated with a separate figure showing the location of significant features using a larger scale inset map. Significant features should be incorporated onto the primary map. As well, a response was not provided to clarify why significant features are excluded from other drawings such as the operations plan and the extraction plan.</b></p>	<p>To illustrate the location of significant features clearly on the Existing Features Plan, we include them separately on the inset diagram. However, like all technical documents, the EIS is the main document to be relied on for details of the natural features and their significance and background to the recommended mitigation. There is a lot of information that is required to be conveyed on the Site Plans and the content on the Site Plans are highly prescribed by MNR’s Aggregate Resources of Ontario Standards. The Standards set out what is to be included on the Operations Plans and there is not requirement to include these features on the Operational Plan when the focus of this Plan is intended to illustrate details re operational matters. We trust this helps to clarify the exclusion.</p>
16	Section 8.5.2.2 Mitigation Recommendations for Potential Non SAR Bat Maternity Colonies pg. 8.28	<p>The report text states that “eight (8) multichambered bat boxes have been added to the NCD Planting Plan Drawings L-460 to L-463 to support bat maternity roost opportunities.” However, upon review, only 5 “Rocket” boxes appear to be mapped, all of which are within the southern half of the realigned watercourse corridor. The plan should be updated by including additional rocket boxes to the north half of the corridor.</p>	<p>A total of nine (9) multichambered bat boxes have been provided along the length of the corridor in the NCD Planting Plans and are also reflected in the NCD Grading Plans.</p>

No.	Section	Comment	Response
17		<p>44. According to the Grading Plan Drawings only one artificial snake hibernaculum appears to be proposed to be constructed along the approximately 1.6 km length of the realigned watercourse corridor. However, according to the Planting Plan Drawings, two artificial snake hibernacula are proposed along the realigned watercourse corridor. Please ensure that the drawings are consistent with one another. Also, to better accommodate the future overwintering needs of these taxa, it is recommended that 6 or more additional snake hibernacula be constructed along the length of the corridor. In addition, please incorporate clear specifications on the snake hibernacula design shown on Drawing L-502 from the Toronto Zoo "Adopt-a-Pond" website (<a href="https://www.torontozoo.com/adoptapond/habitat/hibernacula">https://www.torontozoo.com/adoptapond/habitat/hibernacula</a>).</p>	<p>A total of eight (8) snake hibernacula have been provided along the length of the corridor in the NCD Planting Plans and are also reflected in the NCD Grading Plans. Additional detail from the Toronto Zoo snake hibernacula design has been added to the construction detail on sheet L-502.</p>
18		<p>Based on the same drawings described in the above comment, three turtle nesting beds are proposed to be constructed along the realigned watercourse corridor. To better accommodate the nesting needs of these taxa, it is recommended that three additional turtle nesting beds be constructed and if possible, situated in such a way that they face south or southwest and receive unobstructed sunlight (e.g., might some nesting beds be located on the east side of the realigned creek corridor?). In addition, please ensure that the design details shown on Drawing L-502 are consistent with the direction provided in the Toronto Zoo "Adopt-a-Pond" Turtle Nesting Beach Design (<a href="https://www.torontozoo.com/adoptapond/habitat/nesting">https://www.torontozoo.com/adoptapond/habitat/nesting</a>).</p>	<p>A total of six (6) turtle nesting beds have been provided along the length of the corridor in the NCD Planting Plans and are also reflected in the NCD Grading Plans. We can confirm that the turtle nesting bed construction detail on sheet L-502 is consistent with the noted Toronto Zoo design specifications.</p>
19		<p>A wildlife monitoring plan is requested to be included in the Natural Channel Design to document the success of the specific wildlife habitat features described above, as well as wildlife diversity and abundance in general (pre-and post creek corridor realignment).</p>	<p>A note has been added to the Natural Channel Design Drawing notes to indicate that "An Environmental Monitoring Plan for flora and fauna will be developed in consultation with regulatory agencies."</p>
20	Updated ARA Site Plans, Drawing 4 of 6 (Report Recommendations)	<p>Re: Note E. 3.a. It is our understanding that MECP, in its "Species at Risk Bats Survey Note – 2022" now considers the bat active season to be from April 1 – September 30. Please adjust the date range to be consistent with this direction.</p>	<ul style="list-style-type: none"> <li>• Based on the comments received from MECP, Note 3.a of the NETR has been reworded as follows: <ul style="list-style-type: none"> <li>○ The 2.0 ha woodland situated on the east side of Thorold Townline Road shall be removed during the advancement of operations in Phase 1A/1B and the 0.3 ha coniferous plantation situated in Phase 4 will also be removed during the advancement of operations in Phase 4. Tree clearing in both of these woodlots shall be undertaken outside of the breeding bird period and the active bat season from March 23rd to September 30th.</li> </ul> </li> </ul> <p>This revised recommendation has been reflected on the updated Site Plans.</p>

**Attachment 1 ELC Data Cards**

<b>ELC</b> PLANT SPECIES LIST	SITE: Upper S Lane Quarry, Niagara Region
	POLYGON: Wetland along watercourse south of
	DATE(S): May 17, 2024
	SURVEYOR(S): B. Miller

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input checked="" type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input checked="" type="checkbox"/> WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	<input checked="" type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input checked="" type="checkbox"/> GRAMINOID	<input checked="" type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input checked="" type="checkbox"/> FORB	<input checked="" type="checkbox"/> MARSH
<b>SITE</b>	<input type="checkbox"/> CARB. BEDRK.	<input type="checkbox"/> TABLELAND	<b>COVER</b>	<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
<input type="checkbox"/> OPEN WATER		<input type="checkbox"/> CLIFF	<input checked="" type="checkbox"/> OPEN	<input type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
<input type="checkbox"/> SHALLOW WATER		<input type="checkbox"/> CREVICE/CAVE	<input type="checkbox"/> SHRUB	<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
<input checked="" type="checkbox"/> SURFICIAL DEP.		<input type="checkbox"/> ALVAR	<input type="checkbox"/> TREED	<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
<input type="checkbox"/> BEDROCK		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> THICKET
		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> BLUFF			<input type="checkbox"/> WOODLAND
					<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

**STAND DESCRIPTION**

VEG. LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
CANOPY	/	/	/
SUB-CANOPY	/	/	/
UNDERSTORY	3	1	Fraxinus pens. Cornus race, Salix bebb.
GROUND LAYER	4-7	4	Typha. Iris sp. Juncus effu. Carex stip.

HEIGHT (HT) CODES: 1 = >20m; 2 = 10 to 20m; 3 = 2 to 10m; 4 = 1 to 2m; 5 = 0.5 to 1m; 6 = 0.2 to 0.5m; 7 = <0.2m  
COVER (CVR) CODES: 0 = None; 1 = 0 to 10%; 2 = 10 to 25%; 3 = 25 to 60%; 4 = > 60%

STAND COMPOSITION:	BA:
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SIZE CLASS ANALYSIS (DBH in cm)	< 10	10 - 24	25 - 50	> 50
STANDING SNAGS (DBH in cm)	< 10	10 - 24	/	> 50
DEADFALL LOGS (DBH in cm)	< 10	10 - 24	/	> 50

COMMUNITY AGE	<input checked="" type="checkbox"/> PIONEER	<input type="checkbox"/> YOUNG	<input type="checkbox"/> MID-AGE	<input type="checkbox"/> MATURE	<input type="checkbox"/> OLD GROWTH
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**SOIL ANALYSIS**

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G =
MOISTURE:	DEPTH OF ORGANICS (cm):		
HOMOGENEOUS or VARIABLE	DEPTH TO BEDROCK (cm):		

**COMMUNITY CLASSIFICATION**

COMMUNITY CLASS:	COMMUNITY SERIES:
ECOSITE:	
VEGETATION TYPE:	Cattail Mineral Shallow Marsh (MAS2-1) + Forb Min. Meadow
<input checked="" type="checkbox"/> INCLUSION	MASMI-10 (common Reed Min. Shallow Marsh)
<input type="checkbox"/> COMPLEX	Marsh (MAN2-10)

MA52-1 + MA52-10

<b>BOTANICAL INVENTORY FORM</b>	PROJECT: <i>Uppers Lane Quarry, Niagara Region</i>		
	SURVEY AREA: <i>Wetland along watercourse south of Uppers Lane.</i>		
			UTM:
	1 <sup>st</sup> Survey: <i>May 17, 2024</i>	2 <sup>nd</sup> Survey:	3 <sup>rd</sup> Survey:
SURVEYOR(S): <i>B. Miller</i>		SURVEYOR(S):	SURVEYOR(S):

VASCULAR PLANT SPECIES	CANOPY	SUB-CANOPY	UNDERSTORY	GROUND LAYER	VASCULAR PLANT SPECIES	GROUND LAYER	VASCULAR PLANT SPECIES	GROUND LAYER
<b>TREES, SHRUBS &amp; WOODY VINES</b>					<b>HERBACEOUS FLORA</b>			
<i>Salix bebb.</i>			O		<i>Typha angu.</i>	A	} July 24, 2017	
<i>Fraxinus pens.</i>			O		<i>Agrostis giga.</i>			
<i>Cornus obliq.</i>			R		<i>Symphyc. lauc.</i>			
<i>Cornus race.</i>			O		<i>Myosotis laxa.</i>			
<i>Ulmus amer.</i>			R		<i>Impatiens cape.</i>			
					<i>Schizano. taber.</i>			
					<i>Carex vulp.</i>			
					<i>Phragmites aust.</i>			
					<i>Lythrum sali.</i>			
					<i>Juncus effu.</i>			
					<i>Phalaris aron.</i>			
					<i>Rumex crisp.</i>			
					<i>Carex stipata</i>	O-A		
					<i>Iris sp.</i>	A		
					<i>Onoclea sens.</i>			
					<i>Ranunculus scel.</i>			

Signature: \_\_\_\_\_  
(Field Personnel)

Signature: \_\_\_\_\_  
(Project Manager)

Relative Species Abundance: D = Dominant; A = Abundant; O = Occasional; R = Rare  
Vegetation Height: Canopy = > 20m; Sub-canopy = 10 – 20m; Understory = 2 – 10m; Ground Layer = < 2m

<b>ELC</b> PLANT SPECIES LIST	SITE: <i>Uppers Lane Quarry, Niagara Region</i>
	POLYGON: <i>FOD2-2 or FOD9</i>
	DATE(S): <i>May 10, 2019 + May 17, 2024</i>
	SURVEYOR(S): <i>B. Miller</i>

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	ORGANIC	LACUSTRINE	<input checked="" type="checkbox"/> NATURAL	PLANKTON	LAKE
WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	RIVERINE	CULTURAL	SUBMERGED	POND
AQUATIC	PARENT MIN.	BOTTOMLAND		FLOATING-LVD.	RIVER
	ACIDIC BEDRK.	TERRACE		GRAMINOID	STREAM
	BASIC BEDRK.	VALLEY SLOPE		FORB	MARSH
<b>SITE</b>	CARB. BEDRK.	<input checked="" type="checkbox"/> TABLELAND	<b>COVER</b>	LICHEN	SWAMP
		ROLL. UPLAND		BRYOPHYTE	FEN
OPEN WATER		CLIFF	OPEN	<input checked="" type="checkbox"/> DECIDUOUS	BOG
SHALLOW WATER		CREVICE/CAVE	SHRUB	CONIFEROUS	BARREN
<input checked="" type="checkbox"/> SURFICIAL DEP.		ALVAR	<input checked="" type="checkbox"/> TREED	MIXED	MEADOW
BEDROCK		ROCKLAND			PRAIRIE
		BEACH / BAR			THICKET
		SAND DUNE			SAVANNAH
		BLUFF			WOODLAND
					<input checked="" type="checkbox"/> FOREST
					PLANTATION

**STAND DESCRIPTION**

VEG. LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
CANOPY	<i>1</i>	<i>4</i>	
SUB-CANOPY	<i>2</i>	<i>3</i>	<i>* See attached plant list</i>
UNDERSTORY	<i>3</i>	<i>3</i>	
GROUND LAYER	<i>4-7</i>	<i>2</i>	

HEIGHT (HT) CODES: 1 = >20m; 2 = 10 to 20m; 3 = 2 to 10m; 4 = 1 to 2m; 5 = 0.5 to 1m; 6 = 0.2 to 0.5m; 7 = <0.2m  
 COVER (CVR) CODES: 0 = None; 1 = 0 to 10%; 2 = 10 to 25%; 3 = 25 to 60%; 4 = > 60%

STAND COMPOSITION:	BA:
--------------------	-----

SIZE CLASS ANALYSIS (DBH in cm)	< 10	10 - 24	25 - 50	> 50
STANDING SNAGS (DBH in cm)	< 10	10 - 24	25 - 50	> 50
DEADFALL LOGS (DBH in cm)	< 10	10 - 24	25 - 50	> 50

COMMUNITY AGE	PIONEER	YOUNG	MID-AGE	<input checked="" type="checkbox"/> MATURE	OLD GROWTH
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**SOIL ANALYSIS**

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G =
MOISTURE:	DEPTH OF ORGANICS (cm):		
HOMOGENEOUS or VARIABLE	DEPTH TO BEDROCK (cm):		

**COMMUNITY CLASSIFICATION**

COMMUNITY CLASS:	COMMUNITY SERIES:
ECOSITE:	
VEGETATION TYPE:	
INCLUSION	
COMPLEX	





<b>ELC</b> PLANT SPECIES LIST	SITE: <i>Uppers Lane Quarry, Niagara Region</i>
	POLYGON: <i>FOD2-4 or FOD9</i>
	DATE(S): <i>May 10, 2019 + May 17, 2024</i>
	SURVEYOR(S): <i>B. Miller</i>

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	ORGANIC	LACUSTRINE	<input checked="" type="checkbox"/> NATURAL	PLANKTON	LAKE
WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	RIVERINE	CULTURAL	SUBMERGED	POND
AQUATIC	PARENT MIN.	BOTTOMLAND		FLOATING-LVD.	RIVER
	ACIDIC BEDRK.	TERRACE		GRAMINOID	STREAM
	BASIC BEDRK.	VALLEY SLOPE		FORB	MARSH
<b>SITE</b>	CARB. BEDRK.	<input checked="" type="checkbox"/> TABLELAND	<b>COVER</b>	LICHEN	SWAMP
		ROLL. UPLAND		BRYOPHYTE	FEN
OPEN WATER		CLIFF	OPEN	<input checked="" type="checkbox"/> DECIDUOUS	BOG
SHALLOW WATER		CREVICE/CAVE	SHRUB	CONIFEROUS	BARREN
<input checked="" type="checkbox"/> SURFICIAL DEP.		ALVAR	<input checked="" type="checkbox"/> TREED	MIXED	MEADOW
BEDROCK		ROCKLAND			PRAIRIE
		BEACH / BAR			THICKET
		SAND DUNE			SAVANNAH
		BLUFF			WOODLAND
					<input checked="" type="checkbox"/> FOREST
					PLANTATION

**STAND DESCRIPTION**

VEG. LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
CANOPY	1	4	
SUB-CANOPY	2	3	<i>* See attached plant list</i>
UNDERSTORY	3	3	
GROUND LAYER	4-7	2	

HEIGHT (HT) CODES: 1 = >20m; 2 = 10 to 20m; 3 = 2 to 10m; 4 = 1 to 2m; 5 = 0.5 to 1m; 6 = 0.2 to 0.5m; 7 = <0.2m

COVER (CVR) CODES: 0 = None; 1 = 0 to 10%; 2 = 10 to 25%; 3 = 25 to 60%; 4 = > 60%

STAND COMPOSITION:	BA:
--------------------	-----

SIZE CLASS ANALYSIS (DBH in cm)	< 10	10 - 24	25 - 50	>50
STANDING SNAGS (DBH in cm)	< 10	10 - 24	25 - 50	>50
DEADFALL LOGS (DBH in cm)	< 10	10 - 24	25 - 50	>50

COMMUNITY AGE	PIONEER	YOUNG	MID-AGE	<input checked="" type="checkbox"/> MATURE	OLD GROWTH
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SOIL ANALYSIS → *Deep silty clay loam*

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G =
MOISTURE:	DEPTH OF ORGANICS (cm):		
HOMOGENEOUS or VARIABLE	DEPTH TO BEDROCK (cm):		

**COMMUNITY CLASSIFICATION**

COMMUNITY CLASS:	COMMUNITY SERIES:
ECOSITE:	
VEGETATION TYPE:	
INCLUSION	
COMPLEX	

BOTANICAL INVENTORY FORM	PROJECT: UPPER'S LANE PROPOSED QUARRY, NIAGARA FALLS, ON		
	SURVEY AREA: FOD2-4 or FOD9		
	South section of Woodlot		UTM:
	1st Survey: May 10, 2019	2nd Survey: May 17, 2024	3rd Survey:
SURVEYOR(S): BRIAN MILLER		SURVEYOR(S): B. Miller	SURVEYOR(S):

KARL HILL

VASCULAR PLANT SPECIES	CANOPY	SUB-CANOPY	UNDERSTORY	GROUND LAYER	VASCULAR PLANT SPECIES	GROUND LAYER	VASCULAR PLANT SPECIES	GROUND LAYER
TREES, SHRUBS & WOODY VINES					HERBACEOUS FLORA			
<i>Carya ovata</i>	x A	x A	x O	x	<i>Geranium macv.</i>	O		
<i>Fagus grand.</i>	A	x O	x O	x R	ERYTH. AMER.	O-A		
<i>Acer - sugar</i>			x R		<i>Geranium robert.</i>	R		
<i>Tilia amer.</i>	x O	O	O	R	<i>Alliaria petio.</i>	R		
<i>Ostrya virg.</i>		x O	x O		<i>Carex - immature</i>	O		
<i>Dead Ash</i>	O-A				<i>Potentilla</i>	R		
<i>Quercus palustris</i>	O				<i>Solidago</i>	O		
<i>Carpinus caro.</i>			x O-A		<i>Fragaria virg.</i>	R		
<i>Ulmus amer.</i>			x R		<i>Galium aparine</i>	R		
<i>Fraxinus amer.</i>			x R	x R	<i>Circaea cand.</i>	O		
<i>Acer x freemanii</i>		R						
<i>Robinia psuedo</i>		R						
<i>Acer plata.</i>		R						
<i>Quercus rubra</i>			R					
<i>Evonymus obovata</i>				x O-A				
<i>Prunus virg.</i>				x O				
<i>Cornus race.</i>				x A				
<i>Rhamnus cath.</i>			x R	x R				
<i>Ribes</i>				R				
<i>Lonicera dioica</i>				R				
<i>Crataegus sp.</i>			x R	O				
<i>Crataegus mono.</i>			R					

Signature: Brian Miller  
(Field Personnel)

Signature: \_\_\_\_\_  
(Project Manager)

Relative Species Abundance: D = Dominant; A = Abundant; O = Occasional; R = Rare

Vegetation Height: Canopy = > 20m; Sub-canopy = 10 - 20m; Understory = 2 - 10m; Ground Layer = < 2m

**ELC** SITE (project no./name): Uppers Quarry POLYGON:

COMMUNITY DESCRIPTION & CLASSIFICATION SURVEYOR(S): BM DATE: July 24, 2017 PHOTO No.:

START: END: ZONE & UTM:

**POLYGON DESCRIPTION**

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	<input checked="" type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input type="checkbox"/> WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input checked="" type="checkbox"/> GRAMINOID	<input type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK.	<input checked="" type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL, UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
		<input type="checkbox"/> CLIFF		<input type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE / CAVE		<input type="checkbox"/> MIXED	<input checked="" type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF			<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

**STAND DESCRIPTION:**

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY			
2 SUB-CANOPY			
3 UNDERSTOREY			
4 GRD. LAYER	5-7	4	See plant list

HT CODES: 1=>25m 2=10<HT<25m 3=2<HT<10m 4=1<HT<2m 5=0.5<HT<1m 6=0.2<HT<0.5m 7=HT<0.2m  
CVR CODES: 0=NONE 1=0%<CVR<10% 2=10<CVR<25% 3=25<CVR<60% 4=CVR>60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS: <10 10-24 25-50 >50

STANDING SNAGS: <10 10-24 25-50 >50

DEADFALL/LOGS: <10 10-24 25-50 >50

ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT

COMM. AGE:  PIONEER  YOUNG  MID-AGE  MATURE  OLD GROWTH

**SOIL ANALYSIS:**

TEXTURE: DEPTH TO MOTTLES/GLEY g= G=

MOISTURE: DEPTH OF ORGANICS: (cm)

HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK: (cm)

**COMMUNITY CLASSIFICATION:**

COMMUNITY CLASS: CODE:

COMMUNITY SERIES: CODE:

ECOSITE: CODE:

VEGETATION TYPE: Dry-moist Old Field Meadow CODE: CUM1-1

INCLUSION CODE:

COMPLEX CODE:

Notes: (e.g. disturbance, surface water depths, etc.)

LAYERS: 1=CANOPY>10m 2=SUB-CANOPY 3=UNDERSTOREY 4=GROUND (GRD.) LAYER  
ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT D=DOMINANT

SPECIES CODE	LAYER				COLL.	SPECIES CODE	LAYER				COLL.	
	1	2	3	4			1	2	3	4		
						<i>Solidago cana.</i>					X	
						<i>Ambrosia arte.</i>					X	
						<i>Symphyla lanp.</i>					X	
						<i>Daucus carota</i>					X	
						<i>Asclepias syriaca</i>					X	
						<i>Bromus inermis.</i>					X	
						<i>Zolium arund.</i>					X	
						<i>Lotus corn.</i>					X	
						<i>Fragaria virgin.</i>					X	
						<i>Visia etacca</i>					X	

Page \_\_\_ of \_\_\_

Quality Control: This form is complete  & legible

Print Name: \_\_\_\_\_  
(Field Notes Author)

Signature: \_\_\_\_\_  
(Field Notes QA/QC personnel)

May 17, 2024 B. Miller

<b>ELC</b> COMMUNITY DESCRIPTION & CLASSIFICATION	SITE (project no./name): <u>Uppers Quarry</u>		POLYGON:	
	SURVEYOR(S): <u>BM</u>		DATE: <u>July 24, 2017</u>	PHOTO No.:
	START:	END:	ZONE & UTM:	

**POLYGON DESCRIPTION**

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input type="checkbox"/> WETLAND	<input type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK.	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
		<input type="checkbox"/> CLIFF		<input type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE / CAVE		<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF			<input type="checkbox"/> FOREST
					<input checked="" type="checkbox"/> PLANTATION

**STAND DESCRIPTION:**

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	3	A	<i>Fraxinus pens.</i> + <i>Acer x free.</i>
2 SUB-CANOPY			
3 UNDERSTOREY			
4 GRD. LAYER			

HT CODES: 1=>25m 2=10<HT≤25m 3=2<HT≤10m 4=1<HT≤2m 5=0.5<HT≤1m 6=0.2<HT≤0.5m 7=HT<0.2m  
CVR CODES: 0=NONE 1=0%<CVR≤10% 2=10<CVR≤25% 3=25<CVR≤60% 4=CVR>60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:	<10	10 - 24	25 - 50	>50
STANDING SNAGS:	<10	10 - 24	25 - 50	>50
DEADFALL/LOGS:	<10	10 - 24	25 - 50	>50

ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT

COMM. AGE: PIONEER  YOUNG MID-AGE MATURE OLD GROWTH

**SOIL ANALYSIS:**

TEXTURE: DEPTH TO MOTTLES/GLEY g= G=  
MOISTURE: DEPTH OF ORGANICS: (cm)  
HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK: (cm)

**COMMUNITY CLASSIFICATION:**

COMMUNITY CLASS: CODE:  
COMMUNITY SERIES: CODE:  
ECOSITE: CODE:  
VEGETATION TYPE: Deciduous Plantation CODE: CUT1  
INCLUSION CODE:  
COMPLEX CODE:

Notes: (e.g. disturbance, surface water depths, etc.)

\*Reported as CUT1 originally.  
Trees in Rows means plantation.

LAYERS: 1=CANOPY>10m 2=SUB-CANOPY 3=UNDERSTOREY 4=GROUND (GRD.) LAYER  
ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT D=DOMINANT

SPECIES CODE	LAYER				COLL.
	1	2	3	4	
<i>Fraxinus pens.</i>		A		A	
<i>Acer x freemanii</i>		A			
<i>Rhamnus cath.</i>			R	O	
<i>Toxic. radi.</i>				O	
<i>Rosa sp.</i>				O	
<i>Crataegus spp.</i>			R		
<i>Cornus race.</i>				X	

SPECIES CODE	LAYER				COLL.
	1	2	3	4	
<i>Carex cf. tenera</i>				A	
<i>Solidago giga.</i>				O	
<i>Pronelle volg.</i>				O	
<i>Galium aparine</i>				O	
<i>Veronica offi.</i>					

Page \_\_\_ of \_\_\_

Quality Control: This form is complete  & legible

Print Name: \_\_\_\_\_  
(Field Notes Author)

Signature: \_\_\_\_\_  
(Field Notes QA/QC personnel)

**ELC** SITE (project no./name): Uppers Quarry POLYGON:

COMMUNITY DESCRIPTION & CLASSIFICATION SURVEYOR(S): BM DATE: July 24, 2017 PHOTO No.:

START: END: ZONE & UTM:

**POLYGON DESCRIPTION**

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input type="checkbox"/> WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK.	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
		<input type="checkbox"/> CLIFF		<input type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
		<input type="checkbox"/> TALUS		<input checked="" type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE / CAVE		<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF			<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

**STAND DESCRIPTION:**

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	3	4	<u>Pinus strobus</u>
2 SUB-CANOPY			
3 UNDERSTOREY	3-4	2	<u>Rhamnus cath.</u>
4 GRD. LAYER	6	1	<u>Aster and speedwell</u>

HT CODES: 1=>25m 2=10<HT<25m 3=2<HT<10m 4=1<HT<2m 5=0.5<HT<1m 6=0.2<HT<0.5m 7=HT<0.2m

CVR CODES: 0=NONE 1=0%<CVR<10% 2=10<CVR<25% 3=25<CVR<60% 4=CVR>60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:	<10	10 - 24	25 - 50	>50
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STANDING SNAGS:	<10	10 - 24	25 - 50	>50
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DEADFALL/LOGS:	<10	10 - 24	25 - 50	>50
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ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT

COMM. AGE: PIONEER  YOUNG MID-AGE MATURE OLD GROWTH

**SOIL ANALYSIS:**

TEXTURE: DEPTH TO MOTTLES/GLEY g= G=

MOISTURE: DEPTH OF ORGANICS: (cm)

HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK: (cm)

**COMMUNITY CLASSIFICATION:**

COMMUNITY CLASS: CODE:

COMMUNITY SERIES: CODE:

ECOSITE: CODE:

VEGETATION TYPE: White Pine Con. Plantation CODE: CUP3-2

INCLUSION CODE:

COMPLEX CODE:

Notes: (e.g. disturbance, surface water depths, etc.)

May 17, 2024 B. Miller

LAYERS: 1=CANOPY>10m 2=SUB-CANOPY 3=UNDERSTOREY 4=GROUND (GRD.) LAYER  
 ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT D=DOMINANT

SPECIES CODE	LAYER				COLL.	SPECIES CODE	LAYER				COLL.	
	1	2	3	4			1	2	3	4		
<u>Pinus strobus</u> X1						<u>Symphyc.</u>					X	
						<u>later.</u>						
<u>Fraxinus amer.</u>				0		<u>Veronica</u>					X	
						<u>serp.</u>						
						<u>Achillea mill.</u>						
						<u>TARAX. OFFIC.</u>						
						<u>Solidago cana.</u>						
<u>Rhamnus cath.</u>			X	X								
<u>Cornus rac.</u>				X								

Page \_\_\_ of \_\_\_

Quality Control: This form is complete  & legible

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

(Field Notes Author)

(Field Notes QA/QC personnel)

**ELC** SITE (project no./name): Uppers Quarry POLYGON:

COMMUNITY DESCRIPTION & CLASSIFICATION SURVEYOR(S): LU DATE: Aug 9, 2017 PHOTO No.:

START: END: ZONE & UTM:

**POLYGON DESCRIPTION**

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input type="checkbox"/> WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK.	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
		<input type="checkbox"/> CLIFF		<input checked="" type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE / CAVE		<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF			<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

**STAND DESCRIPTION:**

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	4	4	<u>Cornus racemosa</u>
2 SUB-CANOPY			
3 UNDERSTOREY			
4 GRD. LAYER	5-7	4	<u>Solidago spp.</u>

HT CODES: 1=>25m 2=10<HT<25m 3=2<HT<10m 4=1<HT<2m 5=0.5<HT<1m 6=0.2<HT<0.5m 7=HT<0.2m  
CVR CODES: 0=NONE 1=0%<CVR<10% 2=10<CVR<25% 3=25<CVR<60% 4=CVR>60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:	<10	10-24	25-50	>50
STANDING SNAGS:	<10	10-24	25-50	>50
DEADFALL/LOGS:	<10	10-24	25-50	>50

ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT

COMM. AGE:  PIONEER  YOUNG  MID-AGE  MATURE  OLD GROWTH

**SOIL ANALYSIS:**

TEXTURE: DEPTH TO MOTTLES/GLEY g= G=

MOISTURE: DEPTH OF ORGANICS: (cm)

HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK: (cm)

**COMMUNITY CLASSIFICATION:**

COMMUNITY CLASS: CODE:

COMMUNITY SERIES: CODE:

ECOSITE: CODE:

VEGETATION TYPE: Gray Dogwood Shrub Thicket CODE: CUT1-4

INCLUSION CODE:

COMPLEX CODE:

Notes: (e.g. disturbance, surface water depths, etc.)

LAYERS: 1=CANOPY>10m 2=SUB-CANOPY 3=UNDERSTOREY 4=GROUND (GRD.) LAYER  
ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT D=DOMINANT

SPECIES CODE	LAYER				COLL.	SPECIES CODE	LAYER				COLL.	
	1	2	3	4			1	2	3	4		
<u>Cornus racemosa</u>			X			<u>Solidago juncea</u>					X	
						<u>Agrostis stolon.</u>						X
						<u>Symphlo. spp.</u>						X
						<u>Juncus tenu.</u>						X
						<u>Phleum prat.</u>						X
						<u>Solidago spp.</u>						X
						<u>Cool season grasses</u>						X

Page \_\_\_ of \_\_\_

Quality Control: This form is complete  & legible

Print Name: \_\_\_\_\_  
(Field Notes Author)

Signature: \_\_\_\_\_  
(Field Notes QA/QC personnel)





**ELC** SITE (project no./name): Uppers Quarry POLYGON:

COMMUNITY SURVEYOR(S): BM DATE: Aug. 25, 2017 PHOTO No.:

DESCRIPTION & CLASSIFICATION START: END: ZONE & UTM:

**POLYGON DESCRIPTION**

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
<input type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input checked="" type="checkbox"/> WETLAND	<input type="checkbox"/> MINERAL SOIL	<input checked="" type="checkbox"/> RIVERINE	<input type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN.	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD.	<input type="checkbox"/> RIVER
	<input type="checkbox"/> ACIDIC BEDRK.	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> STREAM
	<input type="checkbox"/> BASIC BEDRK.	<input type="checkbox"/> VALLEY SLOPE		<input checked="" type="checkbox"/> FORB	<input checked="" type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK.	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
		<input type="checkbox"/> ROLL UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
		<input type="checkbox"/> CLIFF		<input type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE / CAVE		<input type="checkbox"/> MIXED	<input checked="" type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
<input type="checkbox"/> OPEN WATER		<input type="checkbox"/> ROCKLAND			<input type="checkbox"/> THICKET
<input type="checkbox"/> SHALLOW WATER		<input type="checkbox"/> BEACH / BAR			<input type="checkbox"/> SAVANNAH
<input checked="" type="checkbox"/> SURFICIAL DEP.		<input type="checkbox"/> SAND DUNE			<input type="checkbox"/> WOODLAND
<input type="checkbox"/> BEDROCK		<input type="checkbox"/> BLUFF			<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

**STAND DESCRIPTION:**

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE
1 CANOPY			(>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
2 SUB-CANOPY			
3 UNDERSTOREY			
4 GRD. LAYER	5-7	4	<u>Lythrum Salic., Euthamia gramin.</u>

HT CODES: 1=>25m 2=10<HT<25m 3=2<HT<10m 4=1<HT<2m 5=0.5<HT<1m 6=0.2<HT<0.5m 7=HT<0.2m  
 CVR CODES: 0=NONE 1=0%<CVR<10% 2=10<CVR<25% 3=25<CVR<60% 4=CVR>60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:	<10	10-24	25-50	>50
STANDING SNAGS:	<10	10-24	25-50	>50
DEADFALL/LOGS:	<10	10-24	25-50	>50

ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT

COMM. AGE:  PIONEER  YOUNG  MID-AGE  MATURE  OLD GROWTH

**SOIL ANALYSIS:**

TEXTURE: DEPTH TO MOTTLES/GLEY g= G=

MOISTURE: DEPTH OF ORGANICS: (cm)

HOMOGENEOUS / VARIABLE DEPTH TO BEDROCK: (cm)

**COMMUNITY CLASSIFICATION:**

COMMUNITY CLASS: CODE:

COMMUNITY SERIES: CODE:

ECOSITE: CODE:

VEGETATION TYPE: CODE: MAM2-10

INCLUSION CODE:

COMPLEX CODE: CU1-1

Notes: (e.g. disturbance, surface water depths, etc.)

~~Mixed Forb Mineral Meadow Marsh (MAM2-10)~~  
 Mixed Forb Mineral Meadow Marsh (MAM2-10)  
 Dry - Fresh Old Field Meadow (CU1-1)

LAYERS: 1=CANOPY>10m 2=SUB-CANOPY 3=UNDERSTOREY 4=GROUND (GRD.) LAYER  
 ABUNDANCE CODES: N=NONE R=RARE O=OCCASIONAL A=ABUNDANT D=DOMINANT

SPECIES CODE	LAYER				COLL.	SPECIES CODE	LAYER				COLL.
	1	2	3	4			1	2	3	4	
						<u>Lythrum Salic.</u>					A
						<u>Euthamia gramin.</u>					A
						<u>Agrostis gigantea</u>					X
						<u>Symphoricarpos</u>					X
						<u>Myosotis laxa</u>					X
						<u>Solidago canadensis</u>					X
						<u>Leersia oryzoides</u>					X
						<u>Cirsium arvense</u>					X
						<u>Phragmites australis</u>					X

Page \_\_\_ of \_\_\_

Quality Control: This form is complete  & legible

Print Name: \_\_\_\_\_  
 (Field Notes Author)

Signature: \_\_\_\_\_  
 (Field Notes QA/QC personnel)

**Attachment 2 2012 Breeding Bird Memo**


**Stantec**

To: Vincent Deschamps  
Guelph, On.

From: Heather Hughes  
Guelph, On.

File: 160960720  
Date: October 23, 2012

---

**Reference: Walker Upper's Lane Quarry – Niagara Region  
Breeding Bird Survey 2012**

Breeding bird surveys were conducted on the Walker Upper's Lane Quarry Project Agreement Lands on June 7, 2012 between 06:00 and 09:45 and on June 22, 2012 between 06:00 and 09:40. These investigations were undertaken by Jim Heslop. Survey conditions are outlined in **Table 1**.

**Table 1 – Field Survey Details**

Date	Surveyors	Temp (°C)	Wind (Beaufort)	Cloud Cover (%)	PPT	PPT in Last 24h
June 7, 2012	J. Heslop	12	1	20	None	Rain
June 22, 2012	J. Heslop	19	0	50	None	Rain

Breeding bird surveys were conducted by traversing the site on foot, recording all species of birds that were heard or seen. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding. Observations were separated into three transects and three point count areas. Transect 1 traversed a two deciduous forests (FOD2-2 and FOD2-4) with a small area of meadow marsh/cultural meadow (MAM2-10/CUM1-1) running through the centre. Transect 2 followed a small seasonal drainage watercourse adjacent to agricultural lands, cultural meadow (CUM1-1), cultural thickets (CUT1 and CUT1-4b) and cultural plantations (CUP3-2). Transect 3 was located through cultural thickets (CUT1-4a) and meadow marsh/cultural meadow (MAM2-10/CUM1-1) communities. Point count 1 occurred in crop off of Beechwood Road, point count 2 in crop off the edge of Thorold Townline Rd. and point count 3 occurred on agricultural lands north of the model airplane field off of Thorold Townline Rd.

A complete list of birds observed is appended. In total, 62 species of birds were observed; 61 of which are likely to be breeding on-site and in the site vicinity.

Observed species not expected to be breeding on-site or in the site vicinity include Great Blue Heron. All species observed are ranked S5 (Secure; common and widespread), or S4 (Apparently secure; uncommon but not rare).

Area sensitive birds are defined as those species that prefer to breeding in habitat patches greater than 20ha in size. One (1) area sensitive species was observed. The Ovenbird was observed on the June 7 field surveys in Transect 1, a mixed forest along Thorold Townline. The Ovenbird usually requires 20ha or more of forest with a closed canopy for ground nesting and foraging. It has a preference for deciduous dominate forest stands, but a broad tolerance for breeding in a variety of plant communities (OBBA, 2007).

The Partners In Flight (PIF) program plan for Bird Conservation Region ("BCR") 13 (Lower Great Lakes/St. Lawrence Plain region of southern Ontario) has identified a number of species that are considered conservation priorities for the region (Ontario PIF, 2006). Eight (8) priority species were identified during the breeding bird surveys. Eastern Wood Pewee was found on the first visit in transect 2; a Willow Flycatcher was observed on both visits in transect 3 and at point count station 1; Brown Thrasher was seen along transects 2 and 3 on the second visit; Field Sparrow was seen on both visits along transect 2; Vesper Sparrow was seen on the second visit along transect 3; Savannah Sparrow was seen on both visits along transect 2, and at point count station 1 and 2; Baltimore Oriole were seen on the second visit along transect one in the mixed forest area and Northern Flicker were seen on the second visit along transects 1 and 2.

There was only one species observed considered a species at risk both federally and provincially. The Barn Swallow was listed as Threatened by COSEWIC in May 2011 and by COSSARO in January 2012. The recent provincial listing affords this bird and its general habitat protection under the *Endangered Species Act* (ESA) 2007. As their name suggests, Barn Swallows nest on walls or ledges of barns, as well as on other human-made structures such as bridges, culverts or other buildings (Cadman et al., 2007). Where suitable nesting structures occur, Barn Swallow often form small colonies, sometimes mixed with Cliff Swallows. Barn Swallows feed on aerial insects while foraging in open habitat (COSEWIC, 2011). Barn Swallows are generally considered grassland species, foraging over meadows, hay, pasture or even mown lawn. They will also frequently forage in woodland clearings, over wetland habitats or open water where insect prey are abundant. Six (6) Barn Swallows were observed on the first visit and nine (9) observed on the second visit foraging over the Model Airplane Field on Uppers Lane.

## **Stantec**

October 23, 2012

Page 3 of 3

**Reference: Walker Upper's Lane Quarry – Niagara Region, Breeding Bird Survey**

## **STANTEC CONSULTING LTD**

Heather Hughes

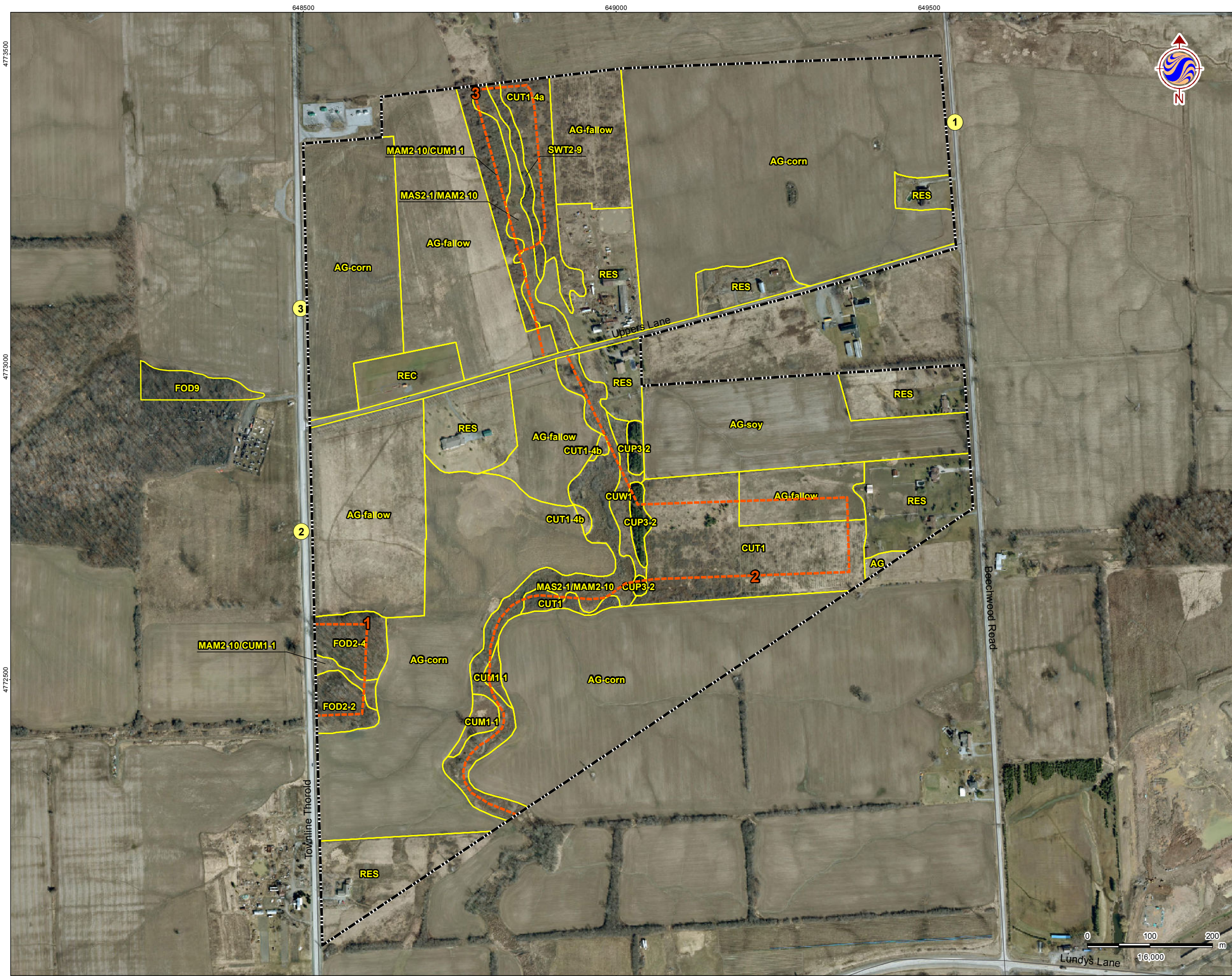
Field Ecologist

[heather.hughes@stantec.com](mailto:heather.hughes@stantec.com)

## **References**

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.

COSEWIC, 2011. COSEWIC assessment and status report on the barn swallow *Hirunda rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp. ([www.sararegistry.gc.ca/status/status\\_e.cfm](http://www.sararegistry.gc.ca/status/status_e.cfm))



**Legend**

- Study Area
- Breeding Bird Transect
- Point Count Location
- ELC Boundary

- Forest Communities (FO)**
- FOD2-2 Dry - Fresh Oak - Hickory Deciduous Forest Type
  - FOD2-4 Dry - Fresh Oak - Hardwood Deciduous Forest Type
  - FOD9 Fresh - Moist Oak - Hickory Deciduous Forest Ecosite

- Cultural Communities (CU)**
- CUP3-2 White Pine Coniferous Plantation Type
  - CUM1-1 Dry - Moist Old Field Meadow Type
  - CUT1 Dry - Fresh Deciduous Shrub Thicket Ecosite - Hawthorn
  - CUT1-4a Gray Dogwood Deciduous Shrub Thicket Type
  - CUT1-4b Dry - Fresh Deciduous Shrub Thicket Ecosite - Hawthorn - Gray Dogwood
  - CUW1 Mineral Cultural Woodland Ecosite - Green Ash - Hybrid Maple

- Swamp Communities (SW)**
- SWT2-9 Gray Dogwood Mineral Deciduous Swamp

- Marsh Communities (MA)**
- MAM2-10/CUM1-1 Mixed Forb Mineral Meadow Marsh/Dry - Fresh Old Field Meadow Complex
  - MAS2-1/MAM2-10 Cattail Mineral Shallow Marsh/Mixed Forb Mineral Meadow Marsh Complex

- Additional Units**
- AG Agriculture
  - REC Recreational
  - RES Residential

**Notes**

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.
3. Image Source: © MHBC, 2012.



**Stantec**

December, 2012  
160960720

Client/Project  
Walker Industries  
Uppers Lane Quarry

Figure No.  
1.0

Title  
**Breeding Bird Survey Locations**