

5 December 2022

Mr. Fred Engelage

SUBJECT:

ZBA Application (22-021)
1391 Crystal Lake Rd,
Galway, Con 10, Lot 25, R45R10829 Part 25, R644584 Part 4 & 5.
Municipality of Trent Lakes (Kinmount)
Fredrick and Mildred Engelage

Shoreline Restoration Plan

Dear Mr. Engelage:

1. Introduction

1.1 Background

Kawartha Conservation has issued a letter to the property owner for site work that has occurred on the shoreline of this property on Crystal Lake.

GHD had completed an Environmental Impact Study for the previous owner that included recommendations regarding the shoreline and trees. GHD subsequently prepared an addendum regarding the tree removal that had occurred. That area is where the concerns by KRCA are focused and the tree removal along the shoreline. The letter from CLOCA outlined their concerns and scope of work to be completed.

Due to Kawartha Conservation not being circulated the 'Addendum re tree clearing on site' document (prepared by GHD dated August 16th, 2022) at the time of initial submission of this application, a revised comments are as follows: It is understood that trees (cedar trees) on the slope and along the shoreline were removed last spring/winter but roots and stumps were left intact to restore the shoreline and that no tree compensation was provided. Which is not supported by Kawartha Conservation; however, support can be provided if shoreline restoration based on the following protocol:

- Where trees greater than 30cm diameter at breast height (dbh) are removed, that they are replaced at a compensation rate of 3:1, that is three trees planted for each tree removed.
- Where trees greater than 10cm dbh but less than 30cm dbh are removed, they are replaced at a compensation rate of 1:1.
- Clusters of trees that are less than 10cm dbh (young regeneration), but are part of the existing continuous tree canopy, be compensated at a rate of 1 tree for every square meter of removal.

•Where possible, in cases where trees are greater than 30cm dbh, every attempt will be made to salvage those trees and to incorporate them into the landscaping plan of the residential development.

•Shrubs and non-native species are not considered as lost trees in the compensation plan.

A landscape plan that incorporates native species in a higher percentage than non-natives, and no invasive species.

1.1 Scope of Work

The following tasks were completed to address this issue.

1. Complete a background review of our initial EIS report, field notes, shoreline fish habitat assessment forms and site photos from last year. As I had conducted the initial field work, I was already familiar with the shoreline conditions, tree cover and overhanging vegetation.
2. Conduct a site visit to confirm the current site conditions, measure trees cut and species, GPS locations and determine what mitigation measures are necessary to restore the shoreline.
3. Prepare a letter report that addresses the following:
 - a. Number of trees cut and species
 - b. Summarize current conditions in terms of stability of slope, stumps, species of trees, location and dbh.
 - c. Determine what the impacts have been from the tree cutting.
 - d. Assess any impacts on the natural heritage features
 - e. Provide options/opportunities for restoration, compensation or rehabilitation including a planting plan.

Since it has been relatively recent since site visit and letter from KRCA, additional information on the requirements to address this situation were pursued.

To address these issues and to identify options for resolving the impacts to the natural heritage features, this restoration plan was prepared.

2. Existing Conditions

The shoreline contained overhanging cedar trees, some with multiple stems, some green ash and white birch. The original shoreline had several dense patches of trees. Photos 1 and 2 were taken on June 24 ,2021.



Photo 1. View of western shoreline (June 24, 2021)



Photo 2. View of eastern shoreline (June 24, 2021)

The conditions on the day of our recent site visit on November 9, 2022, confirmed that shoreline trees had been cut down, but the stumps remained, as well as the root wads. This has maintained the stability of the slope and shoreline. Groundcover vegetation was still intact.

Photos 3 and 4 show the stumps and the location of those along the shoreline. Selective trees were cut but 8 white birch and 4 cedars were retained. In total 21 trees were removed. This included the following trees in table 1 with their dbh.



Photo 3. View of western portion of shoreline. Exposed sand due to normal fall drawdown of entire lake by 60-90 cm. (GHD, November 9, 2022),



Photo 4. View of eastern portion of shoreline. (GHD, November 9, 2022),

3. Impacts from tree removal

Table 1. Existing shoreline trees that have been cut.

Tree number	Common Name	Scientific Name	Approx. dbh of cut tree
001	Eastern white cedar	Thuja occidentalis	Multi stem (20, 6, 8)
002	Eastern white cedar	Thuja occidentalis	4
003	Eastern white cedar	Thuja occidentalis	1
004	Eastern white cedar	Thuja occidentalis	18
005	Eastern white cedar	Thuja occidentalis	11
006	Eastern white cedar	Thua occidentalis	6
007	Eastern white cedar	Thuja occidentalis	9
008	Eastern white cedar	Thuja occidentalis	11
009	Eastern white cedar	Thuja occidentalis	20
010	Eastern white cedar	Thuja occidentalis	4
011	Eastern white cedar	Thuja occidentalis	16
012	Eastern white cedar	Thuja occidentalis	3
013	Eastern white cedar	Thuja occidentalis	14
014	Eastern white cedar	Thuja occidentalis	5
015	Eastern white cedar	Thuja occidentalis	5
016	Eastern white cedar	Thuja occidentalis	14
017	Green ash	Fraxinus pennsylvanica	22
018	White birch	Betula papyrifera	18
019	White birch	Betula papyrifera	24
020	White birch	Betula papyrifera	20
021	White birch	Betula papyrifera	16

3.1 Impact Assessment

The impact of cutting the trees along the shoreline has been a loss of the tree cover and the ecological functions that performs along the shoreline.

As it has been completed relatively recently, the statements in our EIS addendum regarding the cutting are reiterated here.

Although we did not specifically have recommendations regarding trees on the shoreline in our report or cutting trees on the slope, the following statements can be made.

1. Cutting trees outside of breeding bird season has been completed as per our recommendation.

2. In order to address Section 4.2.4.5 b) of the GPGGH which states “restore, to the maximum extent possible, the ecological features and functions in developed shoreline areas” and, and given that a portion of the natural shoreline buffer (primarily cedar trees) has been removed, by leaving stumps and roots intact, maintains the key functions of the trees that includes binding soils, stabilizing slopes and buffering wave action along the shoreline and therefore it is our recommendation that those existing tree roots and stumps remain in place and are not removed. Further shoreline restoration is not required if this recommendation is followed.

3. By not grubbing the stumps those stumps will provide those functions and not result in negative impacts to the natural features and the shoreline.

4. Cedar stumps in particular rot very slowly and can last for years along shorelines and in water.

To restore the shoreline vegetation the following restoration plan details are provided.

4. Restoration Plan

4.1 Restoration recommendations

Following the KRCA guidelines regarding the tree diameter and the ratio of compensation required in their letter, we have assessed the trees impacted at each range of dbh and the number of replacement trees required.

There were no trees over 30 cm dbh, so no tree replacement at 3:1 ratio required.

There were 12 trees of 3 different species between 10 and 30 cm dbh, to be replaced at a 1:1 ratio.

There were 9 small diameter trees less than 10 cm, with one multi-stem. As there were some growing in clusters, we have calculated that 7 trees be planted as compensation.

In total 19 new native trees are to be planted along the shoreline as compensation.

The frontage along the shoreline is less than 80 feet with some white birch in the 13-19 cm dbh range left standing. The placement of the new trees is recommended predominantly on the western portion of the shoreline, as the eastern part is where access to the shore exists and where a previous dock and likely new dock will be located. This is also adjacent to the neighbouring property that has a more open area. By replacing trees west of the staircase and active area, this will create a forested area that is contiguous with the neighbours forested lot and shoreline trees in that area.

Recommended tree species are all native species that are typically found in the Crystal Lake area and are indigenous to this ecozone and the soil/bedrock conditions.

Although the original tree cover was somewhat diverse, additional species have been included to increase the biodiversity. They also produce seeds and mast.

Tree species	Scientific Name	Number required	Size of stock
Eastern white cedar	<i>Thuja occidentalis</i>	12	1-2 gallon potted stock
Eastern hemlock	<i>Tsuga canadensis</i>	2	1-2 gallon potted stock
Red maple	<i>Acer rubrum</i>	2	1-2 gallon potted stock
Downy serviceberry	<i>Amelanchier arborea</i>	3	1-2 gallon potted stock

5. Conclusions

No negative impacts on the shoreline or its ecological functions will occur once the restoration is completed.

The intent of the restoration plan is to restore tree cover on the shoreline with native plantings.

Regards

A handwritten signature in blue ink, appearing to read "C. Ellingwood".

Chris Ellingwood,
Sr. Biologist
GHD

705-931-3929
Chris.ellingwood@ghd.com