

**REVIEW OF THE MHBC AGRICULTURAL IMPACT ASSESSMENT (INCLUDING
THE DBH SOIL SERVICES APPENDIX AND ADDENDUM) FOR THE NELSON
AGGREGATE PIT APPLICATION, CITY OF BURLINGTON, REGION OF HALTON**

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By:
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BACKGROUND

A report, *Agricultural Impact Assessment [AIA] Nelson Aggregate Co. Burlington Quarry Expansion City of Burlington, Region of Halton* (April 2020), was prepared by Mr. Pierre Chauvin of MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC). The report, prepared on behalf of the Nelson Aggregate Co. Inc., concerning the proposed quarry expansion located on Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 in the City of Burlington, Region of Halton is supplemented by information provided by David Hodgson of DBH Soil Services (Appendix A (dated March 4, 2020) in the MHBC AIA). Two additional reports have been produced:

- i. A letter response from MHBC (*Nelson Aggregate Co., Burlington Quarry Expansion, Agricultural Impact Assessment Response Our File 9135J*, September 17, 2020 - referred to in this peer review as the AIA Reply) to comments received related to their AIA.
- ii. An addendum by DBH Soil Services (*Soil Survey and Canada Land Inventory (CLI) Assessment Nelson Aggregate -Burlington Quarry West Extension Part Lots 1 and 2 Concession 2 (Former Nelson Township) City of Burlington Region of Halton, November 26, 2020*).

The purpose of this peer review is to identify whether the MHBC AIA, AIA Reply and the DBH Addendum of the site, as well as primary and secondary study areas, provide sufficient information on:

- i. conclusions and opinions based on quantitative evidence (as much as possible);
- ii. context, both geographic and temporal, to provide for comparison (a relative importance ranking);
- iii. a description of methods;
- iv. searches to ensure that the latest information available is being used to assess agriculture (for example, currently the Ontario Ministry of Agriculture, Food and Rural Affairs, OMAFRA, is correlating soils and soil capability values in Ontario which will potentially change soil names and soil capability classes);
- v. a study area, larger than the site subject to the proposed designation change, where the minimum study area size would be set by Minimum Distance Separation (MDS I) requirements (when MDS I) applies;
- vi. discussion of the limitations of the methods and information presented;
- vii. the language in policy used as a rationale for the agricultural characteristics or factors documented and compared;
- viii. discussion on the relative importance of agricultural characteristics documented and compared (for example, if agricultural characteristics are weighted or are not weighted, why was that decision made, and if agricultural characteristics are combined into a single rank or score, how that was completed?);
- ix. the scale at which the information is presented and the limitations of combining information (multi-attribute analysis) which may only be available at different scales; and,



- x. an analysis of the size, location, and boundary conditions of the lands to be temporarily or permanently removed from agricultural use and/or the agricultural designation (prime agricultural area).

The analysis of positive and negative effects associated with the proposed quarry expansion is multidisciplinary. This AgPlan peer review report is restricted to the multidisciplinary information presented in the AIA. The information used and the opinions expressed in this peer review may be supplemented, reconsidered, or otherwise revised by the author due to:

- new (including reply information which results from this peer review) or previously unknown information; and/or,
- findings presented within the reports produced by disciplines other than agriculture.

OBSERVATIONS ON THE MHBC AIA AND SUPPORTING DOCUMENTS BY DBH

The following observations are made based on sequentially reading through the MHBC AIA and there is no importance to be attached to what is mentioned first through to last. When page numbers in the AIA are cited in this initial review, the page number cited is that printed on the MHBC report. Page numbers indicated by any given PDF reader will be different because full-page maps in the AIA are not assigned a page number. The AIA uses language for each of the proposed extension areas where “**South Extension**” refers to the agricultural lands and the “**West Extension**” identifies the golf course lands. This language will be used in the following comments.

1. In the introduction (page 1), the AIA refers to the West Extension as non-agricultural based on the current golf course use and in the AIA Response, the fact that the golf course is part of a *prime agricultural area* is recognized. In addition, the AIA Response states that the golf course lands have been substantially disturbed and therefore have no capability rating for the production of common field crops. The level of disturbance can only be ascertained by soil observation. Therefore, the AIA statement with respect to “substantially disturbed” has not been verified.
2. On page 3 it is stated that *the potential for impacts will vary and mitigation is dependent on the type and sensitivity of the agricultural activities identified in the primary and secondary study areas*. A reasonable statement, but, given the length of time that the quarry “additions” will be in operation, the type and sensitivity of agricultural activities will potentially vary. How this change in type and sensitivity of agricultural activity will be analysed and mitigated is not described in the MHBC AIA.



3. Changes in the type and sensitivity of agricultural uses in the primary and secondary study areas associated with the proposed South and West Extensions will likely be affected by climate change/warming. Agriculture contributes to climate change as does the production and use of aggregate directly or as part of concrete and asphalt. Climate change will affect agriculture on a scale broader than the primary and secondary study areas. Therefore how:
 - i. is the size of the secondary study area sufficient to document off-site agricultural impacts;
 - ii. has the MHBC AIA considered climate change when evaluating agricultural impacts; and,
 - iii. has the MHBC AIA evaluated cumulative agricultural impacts associated with aggregate mining in the context of various scales from Burlington to Halton Region to the Niagara Escarpment as well as to climate change generally?

4. Given that the current application South Extension area is similar to the previous application (2004 with modifications to the application at later times), in addition to observations made during the time the current quarry has been in operation, there are previous observations, letters and/or reports available that will assist, in conjunction with other information sources, to ascertain:
 - i. changes, if any, in the type and sensitivity of agricultural activities over time;
 - ii. impacts to agriculture identified by complaint and/or applied mitigation; and,
 - iii. the distance and/or off-site area affected as related to complaint and/or applied mitigation.

These previous observations, letters and/or reports need to form part of the impact analysis in the MHBC AIA.

5. The change in type and sensitivity of agricultural activities will also potentially be affected by the rate and density of urbanization within Halton Region. However, based on the Niagara Escarpment Plan (NEP) and the Greenbelt Plan (GBP) as well as other planning documents, the proposed Nelson South and West Extensions are in an agricultural area (Escarpment Rural Area, Protected Countryside, Prime Agricultural Area) which is planned to remain permanently agricultural within the NEP/GBP. Therefore, agricultural information analyses



need to be based on the scale of the NEP/GBP to place the proposed aggregate expansion in that context as well as in the context of Halton and Burlington.

6. The AIA (pages 4 and 5) states that *the proposed after use vision for the extension and existing quarry is to develop a landform suitable for a future park. As a result, the rehabilitation plan for the South extension includes a beach, lake, exposed quarry faces, wetlands, and forested areas. The rehabilitation plan for the West Extension includes a series of ponds, wetlands, exposed quarry faces and forested areas.* There is no discussion how this proposed after use is compatible with agriculture in the context of agricultural use and soil capability in the area potentially influenced or affected by the existing quarry and proposed quarry extensions as well as the NEP, GBP, PPS, Halton, and Burlington plans.
7. It is stated in the AIA (page 5) that; *furthermore, a soil survey and Canada Land Inventory (CLI) Evaluation was completed by DBH Soil Services Inc. to document the existing soil conditions and provide a more detailed assessment of the Canada Land Inventory (CLI) classification for the soil resources on both properties.* If the assumption is made that the reference to both properties means the South Extension and the West Extension, I interpret the quote above to indicate that a CLI classification for both extensions has been presented. In addition, the DBH Addendum (November, 2020) states on page 3 that the Addendum soil survey included *completion of mapping to illustrate the location of the property, the occurrence of soil polygons and appropriate CLI capability ratings.* Subsequently, DBH presents no maps of soil polygons or appropriate CLI capability ratings. The information presented in the DBH indicates:
 - i. There are differences in depth to bedrock, or at least to refusal, when a Dutch auger is used to expose the soil profile (were other methods of exposing the soil profile used to determine the reason for refusal?).
 - ii. There are differences in soil drainage (in the sense that some profiles are identified by DBH as imperfectly drained and others are “unknown”). Differences in vegetation as well as in characteristics within a soil profile are used to distinguish soil drainage class. In those areas planted to grasses, how were water tolerant versus water intolerant grasses differentiated by DBH in the field?

DBH also identifies on page 2 of the Addendum that topography information was provided by MHBC Planning. These aforementioned three pieces of information (depth to bedrock, soil drainage class and slope class) could have been used to differentiate soil polygons within the West Extension. Why were soil polygons not differentiated on the basis of these three characteristics?



8. The legend in Figure 4 “Agricultural Land Uses” has various crops listed but they are not visible on the Figure 4 map that I have been able to access. The report should be revised to include this information.
9. On page 7 of the MHBC AIA, *the site visit confirmed that there are not many productive and contiguous agricultural operations within the Primary Study Area, as this area is already fragmented by the existing aggregate, recreational, natural and rural residential uses.* And then on page 10, *in addition to the existing aggregate extraction operations within the Study Area, there are few active agricultural operations within the Secondary Study Area* [underlining added]. “Few” and “not many” are not defined and are not put in context, with what occurs on average, or within a specific range of values within different areas or at different scales such as Halton Region, the City of Burlington, and the Primary and Secondary Study Areas.

The PPS has the principal determining factor for *prime agricultural areas* and *prime agricultural lands* as soil capability. For example, in OMAFRA’s Land Evaluation and Area Reviews (LEAR) for the Greater Golden Horseshoe, (*Agricultural System Mapping Method, technical document, January 2018*) soil capability was assigned a relative importance of 60% and farm production is assigned 30% of the score leaving 10% for parcel fragmentation. Therefore, the specific meaning of *productive and contiguous agricultural operations* and *active agricultural operations* found in the MHBC AIA need to be defined in the context of specific wording in plans, guidelines, and technical documents.

10. *There are equestrian operations, ranging in size from hobby farms to training facilities* is stated in the AIA on page 11. While the use of the phrase “hobby farm” has been in use for at least 50 years, the definition of the phrase has not been provided in the MHBC AIA and is generally not provided, when the phrase is used, in other AIA’s. If a hobby is something that provides enjoyment, and costs more money than it generates, then an argument can be put forward that approximately 80% of farms can be classified as hobby given that:

- The 80% of farms have higher off-farm income than on-farm income;
- the off-farm income is necessary to sustain the farm and the farmers operating that farm.

Additionally, the PPS (2020) in section 2.3.3.2 states, *in prime agricultural areas, all types, sizes and intensities of agricultural uses and normal farm practices shall be promoted and protected in accordance with provincial standards.* This can be interpreted to mean that discriminating amongst agricultural uses by type, size, and/or intensity, is prohibited, and therefore, distinguishing a hobby farm use versus an equestrian or common field crop use is inappropriate. In my opinion,



recognizing differences in agricultural land uses is only of importance in the PPS when identifying areas of fruit and vegetable production (which are part of the definition of *specialty crop area*).

The MHBC AIA needs to define the meaning of “hobby farm” and provide a measure of the relative predominance of hobby farms at various scales from the municipal to the regional. As well, the AIA needs to explain why the differentiation of hobby farms is of significance in the context of the wording of planning policy.

11. The AIA states on page 12 - *Based on the site visit, the agricultural lands within the Primary and Secondary Study Areas are significantly fragmented by existing rural residential, natural areas and recreational uses. The parcel sizes are indicative of smaller, hobby-sized farms rather than large cash crop or livestock operations found elsewhere in southern and central Ontario. No extensive farm investment such as tile drainage, irrigation or other specialized cropping practices or equipment were observed or are documented within the Primary or Secondary Study Areas. Following the discussion as already outlined in paragraph 10 above, the lands still need to be promoted and protected based on the wording of the PPS. Additionally, what does “extensive farm investment” mean and how has that relative investment been compared at different scales (regional, municipal through to site-specific).*
12. The AIA continues on page 13, stating that *based on the site visits, the agricultural activities within both the Primary and Secondary study area are indicative of broader agricultural trends in the City of Burlington and the Halton Region.*

Overall, agricultural uses within both the Primary and Secondary Study Area are representative of normal agricultural production for this area. The loss of approximately 12.7 hectares of agricultural land, currently used for cash crop production, will have a negligible effect on the social and economic impacts of agriculture in the City of Burlington, Halton Region, and province as a whole.

The conclusion in the first paragraph quoted above would appear to be based, at least in part, on the statistical analysis of a single census year. This interpretation is an unnecessary assumption if the AIA report provides information stating what evidence was used in support of the MHBC AIA statement quoted above. Regardless, a one census year analysis is limited because a single year is insufficient to indicate trends. An analysis of trends is necessary because not all components of agriculture are static. Additionally, some of the categories used in that statistical work would appear to be based on



the “StatsCan” classification of the predominant use of each farm operation. There are no discussions about the specific Statistics Canada data descriptors used in the MHBC AIA and there is no discussion about the limitations of the classification system. Why weren’t direct measures of agricultural uses/activities made based on agricultural census categories for livestock such as total cattle and calves, total hens and chickens etc. (livestock numbers can be calculated per farm operation or per unit area), as well as crops such as total proportionate area of corn, wheat, soybeans, fruit, vegetables etc.? This Statistics Canada information can then be compared at minimum from the regional to municipal scales. Fieldwork could supply the agricultural information from the primary and secondary study areas down to the site-specific scales. Subsequently, the data from the agricultural census and fieldwork can be compared, as an accuracy check for crop production, to area measurements of different crops available from the mapping produced yearly by Agriculture and Agri-Food Canada (AAFC).

The data analyses described in this review would provide evidence concerning whether *the agricultural activities within both the Primary and Secondary study area are indicative of broader agricultural trends in the City of Burlington and the Halton Region.*

The description of differences when comparing the Region and City in the analyses presented, could have been entered as numerical data and compared using multi-attribute analysis (a LEAR is an example of one kind of multi-attribute analysis). This kind of analysis, as described in the previous three paragraphs, was not completed, and should be included in the AIA.

The second paragraph quoted above concludes that the loss of the 12.7 hectares of agricultural land (the author chose to use number of hectares only in agricultural production, which, in my opinion, suggests incorrectly that land uses such as fence rows have no benefit to, and/or are not part of, agriculture) *will have a negligible effect on the social and economic impact of agriculture at three scales - City, Region, and Province.* The statistics quoted in the AIA are insufficient to support this conclusion, including context, for the phrase quoted in paragraph 11 where *the agricultural activities within both the Primary and Secondary study area are indicative of broader agricultural trends in the City of Burlington and the Halton Region.*

13. Figure 5, following page 14, has been reproduced at a scale of 1 to 25,000. The original mapping, upon which the Land Information Ontario soil shape files are based, were mapped at a scale of 1:63,360 (Gillespie et al., 1971). The scale of the original work is not mentioned in the AIA and the significance of the difference of scale with respect to matters such as minimum mappable area have



not been discussed (a map can be accurate to scale but imprecise at a more detailed scale).

14. Tables 2 and 3 on page 15 are based on maps produced at two different scales. Table 2 is based on the work of DBH Soil Services whereas Table 3 is based on the original published information by Gillespie et al. (1971). Therefore, the two tables are not comparable. The AIA analysis on soil capability should compare the two proposed expansion areas based on published information as well as a third table using the more detailed DBH information. Given the need to characterize the soils on the West Extension, the capability comparison should include the current agricultural capability of the golf course lands based on field soil observations as well as to the soil capability of the golf course lands after they have been rehabilitated for agriculture.
15. Figure 6, following Figure 5, is reproduced at a scale of 1:5,000. The soil observations/sampling frequency or intensity relative to scale is appropriate.
16. On page 16, there is a discussion in a subsection title indicating microclimate for specialty crop production. However, the discussion does not deal with microclimate including cold air drainage. The data quoted in the AIA are for Crop Heat Units (CHU) mapped at a broad scale. *Specialty crop areas* mapped by the Province include the Holland Marsh which has similar or lower CHU compared to the Nelson Aggregate site. Therefore, why does the MHBC AIA state that the Nelson Aggregate area has not been mapped as a specialty crop area because of climate?
17. There are some questions related to the section in the MHBC AIA discussing the Planning Policy Framework. On page 19, the PPS is quoted relating to extraction below the water table (section 2.5.4.1, d) where *agricultural rehabilitation in remaining areas is maximized*. This wording is repeated on page 23 of the MHBC AIA when quoting from the Halton Region Official Plan. Subsequently, on page 22, related to the NEP section 2.9.11, the following is quoted: *in prime agricultural areas, where rehabilitation to the conditions set out in (g) and (h) above is not possible or feasible due to the depth of planned extraction or due to the presence of a substantial deposit of high quality mineral aggregate resources below the water table warranting extraction, agricultural rehabilitation in the remaining areas will be maximized as a first priority*. How does the proposed after use, described in the AIA, demonstrate that the *agricultural rehabilitation of remaining areas is maximized and/or agricultural rehabilitation in the remaining areas will be maximized as a first priority*?



Based on the previous paragraph and description in other parts of this peer review, impacts to agriculture need to be evaluated in the MHBC AIA during extraction, rehabilitation, and post-rehabilitation.

18. On page 19 the MHBC AIA states that; *it would be difficult to locate any new aggregate operation within the City of Burlington or Region of Halton that would avoid prime agricultural areas.* This phrase is an answer to the requirement quoted from the PPS in the MHBC AIA on page 19 as well as repeated in the Halton Region Official Plan (MHBC AIA, page 23).

Other alternative locations have been considered by the applicant and found unsuitable. The consideration of other alternatives shall include resources in areas of Canada Land Inventory Class 4 to 7 soils, resources on lands identified as designated growth areas, and resources on prime agricultural lands where rehabilitation is feasible. Where no other alternatives are found, prime agricultural lands shall be protected in this order of priority: specialty crop areas, and Canada Land Inventory Class 1, 2 and 3 lands.

However, there are no maps presented demonstrating the relationship between soil capability classes, the location(s) of the same or similar aggregate resources, the presence of other resources, or other factors restricting aggregate mining, used in support of the statement related to the difficulty of locating a new aggregate operation that avoids *prime agricultural areas*. Additionally, there is no mapping demonstrating where aggregate resources are available and where rehabilitation is feasible. Neither is there mapping to demonstrate the protection of *prime agricultural lands* relative to the priority outlined in policy. The MHBC AIA needs to contain this mapping as evidence that there are no suitable sites based on the wording of planning policy.

19. The MHBC AIA on pages 19 and 20 states that *in terms of impacts on surrounding agricultural properties, an expansion of an existing quarry is preferable as it minimizes impacts on the surrounding agricultural system.* Why it is preferable to have a larger pit operating over a longer time than several smaller pits over a shorter time has not been explained in the MHBC AIA.

20. The section on “5.0, Assessment of Impact” should address the following:

- i. There is no evidence produced in support of the statement *the resulting loss of 12.7 ha of productive agricultural lands is considered to be a negligible loss* (page 28).



- ii. The section on fragmentation does not discuss fragmentation (page 28).
- iii. The discussion on air quality (page 29) does not quote information related to the monitoring of contaminants during the lifetime of the current Nelson Aggregate pit. There is no evidence provided based on actual performance of no significant health impacts and the reader is not referred to a document that defines the meaning of “significant”. It should be noted that agriculture itself potentially produces dust, noise, odours, light; can or does contribute to problems with water quality and quantity; and has documented accident rates, and occupational health problems. Given matters such as those described in the previous sentence, there is no discussion about the contribution of agriculture relative to the proposed Nelson Aggregate Expansion in the MHBC AIA. Neither is there a discussion about the combined contribution of the proposed expansion plus the contributions of agriculture.
- iv. The section on hydrogeology (page 30) states that *the management of water resources is an important consideration for farm operations particularly for watering field/vegetable crops and hydrating livestock*. The irrigation of field crops will be soil dependent and the definition of field crops used in the AIA is not specified. Elsewhere in the report, there is a statement that the lands are not suitable for specialty crops, but they have mentioned vegetables (but not fruit) in relation to irrigation use of water resources. The South Extension lands do have potential for producing specialty crops (fruits and vegetables), and the West Extension will have potential for producing specialty crops assuming that not all the area has been disturbed and/or can be rehabilitated (even though The South and West Extensions are not a *specialty crop area*). There is no mention of previous water quality and/or quantity complaints related to agricultural use and/or aggregate mining in or around the current quarry. Additionally, there is no discussion concerning whether the complainants were satisfied with mitigation applied. The AIA also indicates *there is no evidence of irrigation systems or crops that are dependent on extensive irrigation*. This statement in the AIA assumes that agriculture in the area will not change during the time of the extraction and rehabilitation.
- v. The section on traffic states *it is not anticipated that the truck traffic on the haul route will conflict with agricultural traffic on No. 2 Sideroad. While there is one field access along Guelph Line (between No. 2 Sideroad and 1 Sideroad), Guelph Line is designed with wide shoulders that agricultural traffic can use to move between fields, if needed. This opinion further*



recognizes that neighbouring property owners have been accustomed to the truck traffic patterns from the existing quarry operation in the area. Furthermore, given the limited operating hours of the aggregate operations it is anticipated that any potential impacts/conflicts with agricultural traffic/machinery would be nominal and only concentrated during planting and harvest periods (early spring / late fall). There is no evidence provided that the road shoulders are wide enough for the farm machinery used in Halton and/or in Burlington. The reference to impacts/conflicts as “nominal”, because they only occur during planting and harvesting, is specious.

- vi. Under “blasting impacts” (page 31) the statement is made that *while impacts to water quality and production capacity of groundwater supply wells is a common concern for residents near blasting operations, the report emphasizes that blasting operations do not result in any permanent impact on wells outside of the immediate blast zone.* The statement begs the question - what intermittent impacts occur, what are those impacts and what is their frequency and duration, and, who or what is affected?
 - vii. Under “noise impacts”, there is no evidence presented about the efficacy of mitigation applied during the lifetime associated with the current Nelson Aggregate pit. Neither is there a review of complaints received associated with noise. On the other hand, as stated previously, agriculture can be a noisy industry and comparatively speaking, can potentially be more or less noisy than the pit operation depending on several factors. The comparison and additive result of noise is not discussed in the MHBC AIA.
21. The “summary of net impacts” (starting on page 32) is limited given questions raised previously in this AgPlan review. For example, the areas planned as buffers have not been demonstrated to be effective through field study and/or the published literature, and the people affected by the current operation have not been interviewed with respect to their opinion about Nelson’s “open-door policy” and its effectiveness (or if they have been interviewed/surveyed, their comments are not in the AIA).
22. On page 37, the AIA opines that *this final rehabilitated land-use is compatible with the surrounding agricultural uses and operations and will create landscape diversity. The open-water feature can provide benefits to the agricultural uses in the area through flood attenuation and the storage of fresh water for potential irrigation purposes.* The MHBC AIA does not describe the probable use of the rehabilitated lands given human behaviour in areas with open water. There is some probability that the rehabilitated lands will be used for recreation rather



than open space uses. Under those circumstances, OMAFRA's MDS Document would characterize the proposed rehabilitated use as type "B" because it would have a higher intensity of recreational use (formerly called active recreational use). Therefore, there is evidence that the proposed after use may be less compatible with agriculture if adjacent uses have or will have livestock production. Additionally, there is no discussion about whether open space uses and/or recreational uses will affect water quality. Neither is there any discussion about whether recreational uses such as swimming and the necessity for washroom facilities will affect coliform counts.

23. The summary contained some errors in fact as follows:

- i. (Related to bullet 2 on page 39). The South Extension does contain soils that would support specialty crops such as apples, sweet corn, garlic, cole crops etc. (and the West Extension will support specialty crops in areas where soil profiles have not been disturbed during the creation and use of the golf course or, could support fruit and vegetable production after rehabilitation).
- ii. (Related to bullet 4 on page 39). New agricultural impacts may be introduced by the expansions depending on whether there are changes in technology associated with agriculture and/or aggregate extraction.
- iii. (Related to bullet 5 on page 39). There has been no mapped evidence demonstrating that there are no reasonable alternatives in *prime agricultural areas* and there may be alternatives which avoid *prime agricultural land*.
- iv. (Related to bullet 8 on page 39). There may be impacts to the adjacent agricultural uses or operations due to cumulative impacts.
- v. (Related to bullet 10 on page 39). The proposed after use does not demonstrate that the *agricultural rehabilitation of remaining areas* [areas not underwater] *is maximized* and/or *agricultural rehabilitation in the remaining areas will be maximized as a first priority*. The presence of open water may result in water-based activities and other recreational uses. These active recreational uses have the potential to be incompatible with agricultural use.

24. The MHBC AIA neglects to address some matters described in policy and/or guidelines. For example, Halton Region's AIA Guidelines include reference to



agricultural viability and farm management. The MHBC AIA needs to address these agricultural characteristics in their assessment.

25. Reference has been made within the AIA to reports by other disciplines. However, there is a lack of integration of information from other disciplines. For example, the infiltration of water into the soil profile and subsequent (unsaturated flow of water within the agricultural soil profile which occurs during the time of crop growth) may change because of the pumping of water during the excavation of aggregate materials below the water table. The probability of change will require the integration of information from the disciplines of Hydrology, Hydrogeology, and Agrology (soil physics). Information needs to be integrated either within the AIA or within another report. If the information is described in another (different discipline) report, the other report should be quoted as well as referenced within the AIA.
26. The DBH Addendum concludes that the entire West Extension site (identified in the DBH Addendum as the subject lands) *is considered as disturbed and is considered as not rated in the CLI system*. On that basis, it can be interpreted that no soils that have been disturbed can be rated using the CLI system. Therefore, following that statement, farmlands that have been land levelled (disturbed) to improve surface drainage, for example, so as to improve crop yields, would not be rated under the CLI system. However, the CLI system states that *good soil management practices that are feasible and practical under a largely mechanized system of agriculture are assumed* and that *soils considered feasible for improvement by drainage, by irrigating, by removing stones, by altering soil structure, or by protecting from overflow, are classified according to their continuing limitations or hazards in use after the improvements have been made*. Land leveling can be considered as an improvement rather than an indication of disturbance.

Secondly, the PPS (2020) defines an *agricultural condition* with respect to the rehabilitation of mineral extraction areas found within *specialty crop areas* and *prime agricultural land* as needing to result in *substantially the same areas and same average soil capability for agriculture are restored*. Because former quarries and mined aggregate areas, where extraction has not been completed below the water table, have been disturbed, then, following the conclusion of the DBH Addendum, those former quarries and mined aggregate areas could not be rated in the CLI system. Therefore, the lack of the CLI rating would not allow anyone to establish whether the rehabilitated lands could be and/or had been restored to the same average soil capability as required by the PPS (2020).



Does DBH take the view that language in the PPS, related to the level of acceptable rehabilitation, cannot be reached because the CLI capability classification cannot be applied to disturbed soils?

27. DBH Soil Services concludes that the West Extension lands *should not be considered as Prime Agricultural Land and should not be considered as part of the Provincial Land Base Prime Agricultural Area mapping*. The PPS (2020) definition of *Prime Agricultural Area* means areas where prime agricultural lands predominate. This includes areas of prime agricultural lands and associated Canada Land Inventory Class 4 through 7 lands, and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. Therefore, it can be interpreted that a given map polygon defined as *Prime Agricultural Area* would need to have more than 50% by area of *Specialty Crop Area* and/or CLI Class 1, 2, and 3 lands as well as associated Class 4 through 7 lands and areas of ongoing agriculture.

Given the previous discussion in paragraphs 7 and 26 as well as the definition of a *Prime Agricultural Area* in the PPS (2020), it is unclear how DBH concluded that the West Extension lands *should not be considered as Prime Agricultural Land and should not be considered as part of the Provincial Land Base Prime Agricultural Area mapping*. Additional explanation is required in support of the conclusion reached in the DBH Addendum.

GENERAL SUMMARY

The comments provided within this review, indicate that the MHBC AIA and the supporting documentation provided by DBH Soil Services are incomplete because of:

- missing or incomplete information;
- inadequate reference to, and application of ,existing policy, and guidelines;
- lack of reference to quantitative, preferably replicated, studies concerning impacts to agriculture resulting specifically from the existing quarry, and/or generally to other aggregate operations;
- an evidence-based rationale for the size of the secondary study area;
- no discussion on cumulative impacts; and
- insufficient integration of information from different disciplines.



CONCLUSION

Firstly, based on this peer review, the MHBC Agricultural Impact Assessment and supporting documents provided by DBH lack some information where that information would assist in evaluating whether the proposed change in use has relatively low agricultural impacts and is appropriate and reasonable. Secondly, the current AIA, and supporting documentation, in addition to information requested within this peer review, is needed to establish whether the MHBC AIA and DBH documents address impacts to agricultural characteristics described in the published literature, policy, and guidelines.

AgPlan Limited

A handwritten signature in black ink, appearing to read 'Michael K. Hoffman', with a long horizontal flourish extending to the right.

Michael K. Hoffman