

Developing Guidelines for the Rehabilitation of Aggregate Extraction Sites in Prime Agricultural Areas



Case
Study

1

Agricultural Rehabilitation in the Context
of a Pending Aggregate Application



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Case Study 1: Agricultural Rehabilitation in the Context of a Pending Aggregate Application

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Background

With urban and rural development on the rise, there is a growing need for aggregate resources, such as sand and gravel, to build public and private infrastructure.¹ At the same time, population growth and urbanization are putting pressure on agricultural production and agricultural land.² It is critical to protect and sustainably manage both aggregate and agricultural resources. However, high quality aggregate resources are often found within prime agricultural areas or specialty crop areas.³ As such, the aggregates and agriculture industries must work together to sustainably manage resources.

The Ontario Provincial Planning/Policy Statements (PPS) outline the provincial government's land use planning policies for both the aggregates and agricultural industries.⁴ While the PPS (2024) requires prime agricultural areas must be protected for long-term use, it also allows planning authorities to "permit non-agricultural uses in prime agricultural areas for extraction of minerals, petroleum resources, and mineral aggregate resources".⁵ In prime agricultural areas, on prime agricultural land, aggregate extraction is permitted as an interim land use, only if the impacts to the agricultural system are mitigated and minimized as recommended by an agricultural impact assessment (AIA) and the site is rehabilitated back to an agricultural condition upon the completion of extractive activities. The PPS (2024)

defines agricultural condition as "a condition in which substantially the same areas and *same average soil capability* for agriculture is restored".⁶ For specialty crop areas, the PPS (2024) requires that "the same range of specialty crops common in the areas can be achieved, and where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crops will be maintained and restored".⁷ The only time that an aggregate extraction site does not have to be rehabilitated back to an agricultural condition is when the depth of aggregate extraction makes rehabilitation "unfeasible", typically due to extraction below the water table.⁸

¹ Ministry of Natural Resources. (2025). Aggregate resources. *Government of Ontario*, <https://www.ontario.ca/page/aggregate-resources>

² Brooks, T. (2022). Ontario farmland under intense pressure. *Ontario Federation of Agriculture (OFA)*, <https://ofa.on.ca/newsroom/ontario-farmland-under-intense-pressure/>; Spoelstra, D. (2024). We must protect farmland for the sake of future generations. *Ontario Federation of Agriculture (OFA)*, <https://ofa.on.ca/newsroom/we-must-protect-farmland-for-the-sake-of-future-generations/>

³ Ontario Farmland Trust. (2020). The Impacts of Aggregate Mining on Farmland. *Ontario Farmland Trust*, <https://ontariofarmlandtrust.ca/2020/07/02/the-impacts-of-aggregate-mining-on-farmland/>

⁴ The Ontario Provincial Planning Statement was released in 2024, replacing the Ontario Provincial Policy Statement (PPS 2020) and the A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019). Previous versions of the Policy Statement include PPS 1997, 2005, 2014. Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>. Ministry of Municipal Affairs and Housing. (2020). Provincial Policy Statement. *Government of Ontario*, <https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf>. Government of Ontario. (2020). A Place to Grow: Growth Plan for the Greater Golden Horseshoe. *Government of Ontario*, <https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf>. Penaud, A., Holy, K., Lemay, M. A., Fullerton, C. (2026). Policy Timeline – the Intersection of Agriculture and Aggregates. VISTA Science and Technology.

⁵ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*



The Aggregate Resources Act (ARA) includes requirements for the rehabilitation of aggregate extraction sites, including those in prime agricultural areas.⁹ The ARA states that every licensee/permittee has the duty to rehabilitate the site by performing “progressive and final rehabilitation of the site in accordance with the Act”.¹⁰ To ensure that effective and sustainable rehabilitation of aggregate extraction sites on prime agricultural land is carried out, aggregate producers must provide a rehabilitation plan as part of the site plan, in accordance with the Ministry of Natural Resources and Forestry (MNRF) site plan standards.¹¹ Rehabilitation plans include rehabilitation notes, which outline the steps that will be carried out to restore the site to an agricultural land use. Rehabilitation notes may also be included in the operational plan of the site plan, which describes progressive rehabilitation recommendations from technical reports such as an AIA. Aggregate producers must comply with all rehabilitation notes included in the approved site plan. Because of this, rehabilitation plans and notes are critical in holding the aggregates industry accountable to restoring agricultural land.

Detailed rehabilitation plans that incorporate best management practices are critical for effective rehabilitation. However, research and guidance on best practices for rehabilitation of aggregate extraction sites in prime agricultural areas is limited. To increase clarity on best practices, it is important to understand industry norms, common concerns and recommendations from stakeholders and government agencies related to rehabilitation of aggregate extraction sites located in prime agricultural areas.

This case study report is the first in a series of case studies analyzing records related to licence applications for aggregate extraction sites located in prime agricultural areas that will be rehabilitated back to an agricultural condition. The case studies seek to identify rehabilitation norms, common challenges in preparing aggregate applications and rehabilitation plans and recurring recommendations regarding rehabilitation back to an agricultural condition as required by the PPS. The case studies are a part of a broader research project developing evidence-based guidelines for rehabilitation of aggregate extractions sites located in prime agricultural areas in Ontario (Appendix A). Common industry terms are defined in Appendix B - Glossary of Terms. 

⁹ Government of Ontario. Aggregate Resources Act. (2021). *Government of Ontario, E-laws*, <https://www.ontario.ca/laws/statute/90a08>

¹⁰ *Ibid.*

¹¹ Ministry of Natural Resources and Forestry. (2020). Aggregate Resources of Ontario: Site Plan Standards. *Government of Ontario*, <https://files.ontario.ca/mnrf-aggregate-resources-of-ontario-site-plan-standards-2020-en-2021-03-18.pdf>





Case Study Introduction

This case study report focuses on the rehabilitation plan for a proposed aggregates site situated on agricultural land in Ontario. The aggregate producer has not yet received a licence to begin extraction and, therefore, this case study draws on documentation prepared for an Aggregate Resources Act (ARA) licence application and comments on the application from relevant reviewing/commenting agencies.¹²

This case study report draws on information prepared during the licence application process. The following documents were analyzed:

- Initial site plans submitted with the application
- Revised site plans that incorporate recommendations from commenting agencies
- Agricultural Impact Assessment
- AIA peer review
- Comments and communications from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)¹³
- Comments and communications from the Ontario Ministry of Natural Resources and Forestry (MNRF)¹⁴

Site plan documents approved by MNRF are legally-binding, meaning that aggregate producers must comply with all requirements detailed in the plan. A critical part of the site plan is the notes pertaining to rehabilitation of the site following aggregate extraction. Rehabilitation of the site is typically discussed in the operational plan and rehabilitation plan; each of which represent separate elements of the site plan.

The AIA was prepared upon request from the local township for the purposes of a zoning by-law amendment application. The AIA outlined

site features and conditions, potential impacts to prime agricultural land and the agricultural system and provided recommendations for agricultural rehabilitation. While the AIA offered valuable insights on agricultural rehabilitation, it is not an enforceable document. The methodology used for the AIA is outlined in Appendix C.

Site Features and Conditions

The application is for a new Class A aggregate extraction licence under the ARA. If granted, this licence would allow the aggregate producer to extract more than 20,000 tons of mineral aggregate resources annually. The proposed licence area would be ~28 hectares, with ~20 hectares of extraction land. The aggregate producer classifies the site as an “expansion”, because the adjacent lands are already owned and operated by the same aggregate producer. The proposed site would therefore extend upon adjacent operations and utilize some existing infrastructure, such as access roads and aggregates washing facilities.

The site is zoned as a prime agricultural area but is also recognized by the regional municipality as a sand and gravel resource area of primary significance.

¹² The initial site licence application was governed by the PPS (2020) and the Growth Plan for the Greater Golden Horseshoe (2019).

¹³ The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) was the official title of the Ministry at the time that this licence application was submitted. The Ministry’s official title was changed to the Ontario Ministry of Agriculture, Food, and Agribusiness (OMAF) in June 2024.

¹⁴ The Ministry of Natural Resources and Forestry (MNRF) was the official title of the Ministry at the time that this licence application was submitted, and therefore, MNRF was the commenting agency on this licence application. The Ministry’s official title was changed to the Ministry of Natural Resources (MNR) in June 2024, and therefore, MNR is the approval agency for this licence.



While the aggregate producer owns the site, the lands are currently being leased to a local farmer who operates several agricultural properties in the area. The AIA prepared for the licence application stated that the aggregate producer would continue to lease the land to the farmer for agricultural purposes until the area is required for extraction. Farming is also proposed to continue on portions of the site during phased aggregate extraction and rehabilitation of the lands. Farming activities include row crop production, rotating between corn and soybeans.

As part of the AIA, a “reconnaissance level soil confirmation survey” was performed to understand soil resources at the site. Soil resources at the site vary from higher quality to lower quality, depending on the location. Some areas are well-drained and low in organic matter, while other areas are poorly drained and have higher organic matter. The AIA stated that the Soil Capability for Agriculture mapping indicates that the Canada Land Inventory (CLI)¹⁵ soil classification for the site is 2FM. Class 2 soils are considered to have high capability for common field crops, with some moderate limitations that may limit choice in crops.¹⁶ Subclass F indicates that the soils are lower in natural fertility, while subclass M indicates that the soil may have some moisture deficiencies.¹⁷ While the AIA specified that the site is classified as 2FM soils, comments from the OMAFRA indicated that the site lands are a mix of Class 1, Class 2 and Class 4 soils as per the provincial AgMaps inventory.¹⁸ Class 1 soils have high soil capability and can be managed and cropped without difficulty, Class 2 soils have moderate agricultural and cropping limitations, and Class 4 soils may have “severe limitations that restrict the choice of crops”.¹⁹ The presence of Class 1 and Class 2 soils signal overall high levels of soil

capability. Despite this, the AIA stated that site visits revealed that corn crops showed signs of stress from drought, “which may point to the soils having more of the characteristics of Class 4 soils than Class 1 soils”. Discrepancies between CLI classifications presented in the AIA and in comments from OMAFRA are expanded upon in the *Commenting and Review Process* section of this document.

Impacts to Agriculture

The AIA prepared for the licence application stated that the proposed expansion would have a “low impact on the agriculture and agri-food industry”. This low level of impact was determined by a review of OMAFRA’s Agricultural System Portal,²⁰ which showed a “relatively low level of agricultural investment and few components of the agri-food network within the study site”. The AIA stated that the proposed site was not located near other active agricultural operations (except for current agricultural operations on the site), which reduced the potential for disruption to farm operations. The proposed extraction was above the water table, which meant that pit operations would have “little to no impact” on groundwater resources being utilized for surrounding agricultural uses.

It is important to note that, in the case of the AIA prepared for this aggregate licence application, the “study site” is defined as “the Subject Lands (the proposed licence area) and any lands immediately adjacent (120 m) to the licenced area which are potentially directly impacted by the operation (e.g., changes to surface drainage patterns)”. However, it is important to restate that the proposed licence application is an expansion to a pit located adjacent to the site. Because of this, the adjacent lands, which are also zoned as prime agricultural area, are already disrupted (i.e., utilized for aggregate extraction).

¹⁵ <https://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html>

¹⁶ Ministry of Agriculture Food and Agribusiness. (2024). Soil Capability for Agriculture in Ontario. *Government of Ontario*, <https://www.ontario.ca/files/2024-08/omafa-soil-capability-for-agriculture-in-ontario-en-2024-08-15.pdf>

¹⁷ *Ibid.*

¹⁸ Ministry of Agriculture, Food, and Agribusiness. AgMaps. *Government of Ontario*, <https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA>

¹⁹ *Ibid.*

²⁰ Ministry of Agriculture, Food, and Rural Affairs. (2021). Agricultural Systems Portal: Understanding the agri-food supply chain across Ontario. *Government of Ontario*, <https://agriculture-systems-portal-ontarioca11.hub.arcgis.com/>



The AIA stated that impacts to the agricultural system would be mitigated through progressive rehabilitation, with 100% of the extraction lands proposed to be rehabilitated back to an agricultural condition. It reiterated that provincial planning policies allow for the extraction of mineral aggregate

resources in prime agricultural areas as an interim use, and that the rehabilitation plan outlined methods for “rehabilitation to an agricultural condition with an objective to restore the lands to the same or better capability as pre-extraction”.¹





Agricultural Rehabilitation

The aggregate producer has proposed a phased agricultural rehabilitation plan. It is worth noting that this application is still underway and has not yet been approved by the Ministry of Natural Resources (MNR). Accordingly, the final site plans are subject to change.

This section compares the rehabilitation notes in the initial site plan with the rehabilitation notes in the revised site plan, which incorporated recommendations from reviewing and commenting agencies. It also provides an analysis of the extent to which recommendations in the AIA were implemented in the initial and/or revised site plans.

Phased Rehabilitation

The phased rehabilitation plan proposed for the site included extracting aggregate resources in a sequential and phased manner. Once the producer has depleted aggregate resources in the first phase of the site, progressive rehabilitation will be carried out. According to the AIA, phased rehabilitation would help to “minimize agricultural impacts by permitting a farmer to continue to work the lands until they are required for extraction, and progressively rehabilitate the lands to provide an opportunity for agricultural use of part of the subject lands prior to full decommissioning of the aggregate operation”. Phased rehabilitation was outlined in the operational notes of the site plan and included the following steps, repeated over three operational areas of the site:

- Prior to extraction in the area (e.g., Area 1), prepare the site within the area by removing all existing trees and shrub vegetation located in the area to be extracted.
- Prior to extraction in the area, strip topsoil and overburden separately, and use this material to construct an acoustic berm. Stockpile excess material on the pit floor.
- Begin extraction in the area (e.g., Area 1).
- Other areas to remain in agricultural use (while extracting resources in the subject area).

- Complete extraction in the area (e.g., Area 1).
- Prepare the following area (e.g., Area 2) for extraction, following the same steps proposed above, and continue progressive rehabilitation of the first area (e.g., Area 1)
- Complete progressive rehabilitation of the first area (e.g., Area 1) and begin progressive rehabilitation of the second area (e.g., Area 2).

The site plan noted that extraction would follow the sequence described above. However, demand for certain products or blending of materials could warrant deviation from this phased rehabilitation approach. The site plan stated that any “major deviations” from the operational and rehabilitation sequence shown on the site plans would require approval from MNR. It did not provide further context or characterize the difference between a major versus a minor deviation to this phased approach. Moreover, the site plan notes stated that “phases do not represent any specific or equal time period”.

Initial and Revised Rehabilitation Plans

In addition to phased rehabilitation notes listed in the operational plan, the site plan also included a rehabilitation plan, which expanded upon rehabilitation practices during each phase of rehabilitation. This section provides a comparison of rehabilitation notes in the initial site plan and rehabilitation notes in the revised site plan (Table 1). The revised site plan was amended to address concerns raised by commenting agencies, such as OMAFRA, during the review process.



Table 1. Comparison of rehabilitation notes in the initial and revised site plan. Certain information is paraphrased for better readability. Some rehabilitation notes are bolded to highlight specific changes made to the revised site plan.

Initial Rehabilitation Notes		Additions or Changes in the Revised Rehabilitation Notes
General Rehabilitation Notes	General rehabilitation notes stated that the “areas shall be rehabilitated back to agriculture as follows”: • Deep ripping of the area to eliminate compaction (where required). • Spreading of ~200 mm of overburden and rough grading. • Spreading of ~200 mm – 300 mm of topsoil and fine grading. • All vegetation planted during this licence will be maintained in a healthy, vigorous growing condition. • Use of accepted farming practices to restore and maintain vegetation.	All information listed in the initial site plan remained, with the addition of the following statements: • Spreading of ~200 – 400 mm of topsoil and fine grading. • Stone picking of stones greater than 75 mm as required. • In support of final rehabilitation, soil sampling will be undertaken to assess post-extraction soil characteristics (macro and micronutrients, pH, CEC, organic matter, soil texture, structure and bulk density) relative to the documented baseline soil characteristics, using an accredited lab for analytical testing. Adjustments to cropping practices and/or soil amendments may be required based on the results of the soil testing, in consultation with the tenant farmer, to ensure substantially the same average soil capability for agriculture that existed pre-extraction is restored.





Slope	Notes related to slope stated that: • Slopes shall be rehabilitated by backfilling (minimum 3:1) and/or cut and fill method using available on-site overburden and topsoil and/or clean inert imported fill. Side slopes may be flattened to increase agricultural viability. • Backfill may consist of on-site overburden (silt or subsoil) or imported clean fill. • Clean inert fill (topsoil and/or overburden) may be imported to facilitate 3:1 side slope rehabilitation. Only sufficient material to create final grades as shown may be imported. Imported material shall meet the Ministry of Environment, Conservation, and Parks (MECP) regulations for imported fill. Sampling and testing of all imported material shall be performed at source prior to the importation of material onto the licences site by a qualified professional (QP) under the EPA. QP will also design fill monitoring program. Random sampling of all imported material shall be conducted at the request of MNR and MECP.	There were no changes in slope details between the initial and revised site plans.
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Topsoil/ Subsoil Storage and Management	Notes on topsoil/subsoil storage stated that: • All available topsoil on the site will remain to be used for rehabilitation. • Topsoil and overburden shall be stripped and stored separately in berms and stockpiles. • Topsoil berms shall be graded to stable slopes and seeded with a grass/legume mixture to prevent erosion and minimize dust.	All information listed in the initial site plan remained, with the addition of the following statements: • Pre-extraction topsoil depths across the site are variable, ranging from 150mm – 500 mm. During rehabilitation, stored topsoil will be replaced to a depth of 200 – 400 mm across the site. • Soil stripping/handling will only occur during dry (unsaturated) and unfrozen conditions. • If topsoil is stored in stockpiles for prolonged periods, erosion control measures will be established. • Prior to the commencement of stripping, baseline soil sampling will be undertaken to document key agricultural soil characteristics (macro and micronutrients, pH, CEC, organic matter, soil texture, structure and bulk density), using an accredited lab for analytical testing.
Vegetation Information	Notes on vegetation stated that: • Existing vegetation within the licenced area shall be maintained in a healthy vigorous growing condition until sequential stripping begins or until the rehabilitation is complete. • Any vegetation planted as part of site improvements or progressive and final rehabilitation will also be maintained in a healthy, vigorous growing condition. • Topsoil shall be seeded with a mixture of grasses and legumes that may include the following at a rate of ~125 kg/ha: buckwheat, tall fescue, red clover, annual rye and white clover.	There were no changes in vegetation information between the initial and revised site plans.





Fertilizer and Manure Applications	Notes on fertilizer/manure stated that: • Use of accepted farming practices (manure, fertilizer applications) to restore and maintain vegetation.	There were no changes or additions to fertilizer/manure information.
Hydrological Information	Hydrological notes relevant to rehabilitation stated that: • It is anticipated that the groundwater elevation across the site will remain relatively unchanged at 307.2 – 309.3 meters above sea level. • All surface drainage will be directed to the low areas on the pit floor so that the water can infiltrate the soils.	There were no changes in or additions to hydrological information.
Final Rehabilitation Information	Final rehabilitation notes stated: • Upon completion of extraction, all scrap and equipment shall be removed from the site. All internal haul roads shall be rehabilitated once no longer in use for extraction related activities.	There were no changes or additions to final rehabilitation information.

The main differences between the initial site plan and the revised site plan related to soil management, soil storage and soil testing. For example, the revised site plan stated that soil would only be stripped and handled during dry and unfrozen conditions to help minimize soil compaction and soil mixing. Other additions included soil testing pre-extraction and post-extraction. The revised site plan noted that critical indicators of soil capability would be measured, such as soil micronutrients, soil acidity (pH), cation exchange capacity (CEC), organic matter, soil texture, structure and bulk density. Site plan revisions also included additional specificity related to topsoil depths and stone picking to further enhance soil capability.

Agricultural Impact Assessment Recommendations

Recommendations made in the AIA included best practices to preserve and restore soil capability, increase agricultural viability and monitor progress over time (Table 2). Most of these best practices were not included in the initial site plan but were adopted or partially adopted in the revised site plan. While the AIA outlined these best practices, they were implemented into the revised site plan in response to comments and concerns raised during the commenting and review process carried out as part of the licence application. In the context of this case study report, most of these concerns were raised by OMAFRA.





Table 2. Extent of adoption of AIA agricultural rehabilitation recommendations in the site plan.

Agricultural Rehabilitation Recommendation	Description of the Recommendation	Adoption of the Recommendation
Increasing Agricultural Viability on Side Slopes	Creating a flatter side slope of 10:1 or greater where possible to allow for agricultural side slopes. Ensuring slope contours on the pit floor are as uniform as possible, and grading should ensure that there are no irregular undulations or depression areas on the rehabilitated pit floor.	Not adopted.
Minimize Soil Mixing and Soil Compaction	Stripping and handling of soil should be done under dry (unsaturated) conditions to minimize impacts to soil structure. After spreading each layer of topsoil/subsoil, soil compaction should be remediated by ripping or tilling the soils, and ripping or tilling should avoid mixing soil materials and soil layers. To the extent possible, travel over soils and rehabilitated areas should be avoided.	Partially adopted. The revised site plan stated that soils would only be handled during dry (unsaturated conditions) but did not say that ripping would avoid mixing soil layers, nor did it state that travel over rehabilitated areas would be limited.





Stone Picking	Replaced soils should be free from stones, debris and deleterious materials.	Adopted in the initial and revised site plans.
Soil Testing	Soil testing should be completed to confirm soil fertility and nutrient content to determine appropriate soil amendment applications. This could also include a soil study, including a physical review of the soils to better describe surface and sub-surface soils at the site, and help inform rehabilitation measures.	Adopted in the revised site plan.
Plant and Monitor Cover Crops	A grass-legume cover crop should be established in order to maximum results. Crops should be plowed under annually to promote and increase organic matter. Crops should be monitored at least twice during the growing season to ensure success. Over seeding and reseedling may be necessary to control weeds and ensure successful crop establishment.	Partially adopted. The revised site plan stated that a grass-legume cover crop would be established, however it did not state whether crops would be plowed under annually, nor did it specify whether crops would be monitored.





Commenting and Review Process

The initial site plans and AIA were circulated for comment and review by relevant stakeholders. This included an AIA peer-review and comments from MNRF and OMAFRA. Some of the comments were integrated into the revised site plan (Table 1).

The AIA peer-reviewer was retained by the regional municipality to ensure that the AIA was consistent with the requirements of applicable planning documents for a zoning by-law amendment. In the context of this case study, the AIA peer-reviewer did not critique the AIA or the site plans, nor did they offer a comprehensive review of the rehabilitation plan or recommend changes to enhance rehabilitation outcomes. Instead, the peer-reviewer confirmed whether information described within the site plan and AIA were “appropriate” or “adequate” for the licence application. For example, the AIA peer-reviewer stated that the AIA “adequately meets the OMAFRA’s Draft AIA Guidance document”.²¹ The peer-reviewer confirmed that “the description of the soils is adequate for the current purpose and the storage and redistributions [of the soils] is adequate”. There were no instances where the AIA peer-reviewer found that the information was not adequate or appropriate. There were minor recommendations made in the AIA peer-review to enhance rehabilitation outcomes; however, the peer-reviewer felt that these recommendations were not necessary because the proposed rehabilitation plan already met “minimum requirements”.

Comparatively, comments from MNRF and OMAFRA were more critical. Both ministries raised concerns and discussed how the aggregate producer could address these concerns by revising the site

plan or AIA. Comments from MNRF and OMAFRA covered five key themes, discussed below:

- Interpreting Planning Policies
- Canada Land Inventory (CLI) Soil Classes
- Discrepancies Between the AIA and Site Plans
- Recommendations to Improve Soil Management
- Ambiguity in Site Plans

Interpreting Planning Policies

At the time of the initial application, the case study site fell within the Growth Plan for the Greater Golden Horseshoe, which outlined regional land use planning policies and worked alongside the 2020 Provincial Policy Statement.²² The Growth Plan required a zoning by-law amendment for mineral aggregate operations on prime agricultural areas or specialty crop areas. The Growth Plan also stated that measures must be taken to mitigate impacts to the agricultural system by non-agricultural uses, and that “when appropriate, this should be based on an agricultural impact assessment (AIA)”. This is reflected in Policy 4.2.8.3 of the Growth Plan.²³

The aggregate producer’s interpretation of Policy 4.2.8.3 was that an AIA was not required as part of their ARA licence application. The producer justified this interpretation based on the premise that the application was for a pit expansion, which would

²¹ Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>

²² Government of Ontario. (2020). A Place to Grow: Growth Plan for the Greater Golden Horseshoe. *Government of Ontario*, <https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf>; Government of Ontario. (2020). Provincial Policy Statement. *Government of Ontario*, <https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf>

²³ Government of Ontario. (2020). A Place to Grow: Growth Plan for the Greater Golden Horseshoe. *Government of Ontario*, <https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf>



extend current aggregate operations. Despite this interpretation, the local township requested that an AIA be done as a part of the zoning by-law amendment application process. In turn, the aggregate producer prepared the AIA for the local township.

While an AIA was ultimately prepared for the local township, both MNRF and OMAFRA flagged the initial interpretation of the Growth Plan as incorrect. MNRF stated that “it is unclear whether your assessment that an agricultural impact assessment (AIA) is not required, is accurate”. Similarly, OMAFRA stated that “Policy 4.2.8.3 in A Place to Grow (APTG): Growth Plan for the Greater Golden Horseshoe requires that applications for new mineral aggregate operations in prime agricultural areas be supported by an AIA”. OMAFRA went on to stress the importance of an AIA in identifying potential impacts to the agricultural system and outlining measures to mitigate such impacts. OMAFRA told the aggregate producer that the intent of Policy 4.2.8.3 is that AIAs are required to support newly licenced areas under the ARA and that this pit expansion represented a new aggregate licence. Because an AIA had already been prepared for the municipality under the zoning by-law amendment application, these comments and discussions did not result in any meaningful changes to the application.

Canada Land Inventory Soil Classes

Soils of the case study site have been classified using two different websites, including the Canada Land Inventory of Agricultural Classifications²⁴ and OMAFRA AgMaps²⁵. The AIA described the soils as Class 2FM based on the Canada Land Inventory of Agricultural Classifications. However, the AIA peer-reviewer pointed out that OMAFRA's AgMaps more accurately depict the lands as Class 1 and Class 4 soils, with some portions of Class 2 soils. OMAFRA also flagged this discrepancy and recommended that the aggregate producer review CLI classes described in the AIA and confirm soil capability rating(s) for agriculture on the site. The aggregate producer

responded to OMAFRA, confirming that the soil capability at the site is that of Class 1, 2 and 4 soils.

Discrepancies Between Agricultural Impact Assessment and Site Plans

OMAFRA flagged several discrepancies between the AIA and the site plans. Most of these discrepancies pertained to recommendations made in the AIA to enhance rehabilitation and agricultural viability post rehabilitation, which were not included in the initial or revised site plan. As stated by OMAFRA: “the AIA appears to outline several rehabilitation recommendations/best management practices. However, these recommendations are not included on the site plans”. Best practices outlined in the AIA that OMAFRA recommended implementing into site plans included pre-extraction soil testing, working to minimize potential impacts to soil structure and monitoring agricultural rehabilitation. OMAFRA encouraged the aggregate producer to review recommendations outlined in the AIA to determine if the site plans would benefit from including more direction to support how rehabilitation to an agricultural condition would be achieved. OMAFRA also stated that the AIA could be added to the list of technical reports on the site plan.

The aggregate producer added several of the AIA recommendations into the revised site plans as per OMAFRA's comments. Key recommendations included in the final site plan included soil management best practices, as outlined in the following section. While certain recommendations were included in the revised site plan, a monitoring plan as per OMAFRA comments, was not. Moreover, the aggregate producer did not list the AIA as a technical report on the site plan. The technical reports referenced in the site plan included: the hydrogeological report, the natural environment report, the archaeological report, the air quality report and the noise report.

²⁴ Government of Canada. (2025). Canada Land Inventory (CLI). *Government of Canada*, <https://sis.agr.gc.ca/cansis/nsdb/cli/index.html>

²⁵ Ministry of Agriculture, Food, and Agribusiness. AgMaps. *Government of Ontario*, <https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA>



Recommendations to Improve Soil Management

In addition to recommending that the aggregate producer align the site plan with recommendations made in the AIA, OMAFRA also made specific recommendations to improve soil management and enhance rehabilitation outcomes. MNRF similarly provided comments pertaining to soil management for agricultural rehabilitation. Key comments pertained to soil depths, soil testing and soil handling and storage.

Both OMAFRA and MNRF requested that the aggregate producer provide clarity surrounding topsoil depths at the site and include these depths on the site plan. MNRF stated that “rehabilitation techniques on the site plan need to include both present and final depth of topsoil”. In response to these comments, the aggregate producer added additional details to the site plan, including the average topsoil depth across the site before extraction (300 mm) and the range of final topsoil following rehabilitation (200 – 400 mm).

OMAFRA emphasized the importance of soil testing several times in their comments. OMAFRA told the aggregate producer that “soil testing during rehabilitation can help to determine if soil fertility levels on the site are within acceptable levels to support proposed plantings, and if levels are deficient, what management practices may be required to best amend the soils”. The comments went on to state that pre-extraction soil testing could also help to evaluate and document soil capability at the site and ensure that rehabilitated lands meet average or above average soil capability for agriculture. Email communications between the aggregate producer and their consultant suggested negative sentiments toward this comment, with the producer stating that comments related to soil testing were “unfortunate”. The aggregate producer added wording to the revised site plan to state that soil testing would be carried out prior to extraction and following extraction to ensure

comparable soil productivity would be maintained following extraction.

OMAFRA also recommended that the site plan be amended to state that soil would only be stripped and handled at the site during dry (unsaturated) and unfrozen conditions. This comment was added to the revised site plan. OMAFRA also requested that the aggregate producer add erosion control measures for topsoil stockpiles. The aggregate producer addressed this comment by adding the following wording to the site plan: “If topsoil is stored in stockpiles for prolonged periods, erosion control measures will be established”.

Ambiguity in Site Plans

MNRF flagged certain sections of the phased rehabilitation plan (outlined in the operational plan) and the rehabilitation notes (outlined in the rehabilitation plan) as ambiguous. The Ministry asked that the aggregate producer revise these sections to ensure that the language was prescriptive rather than suggestive and add clarity to ensure progressive rehabilitation occurred in a timely manner.

For example, MNRF recommended the inclusion of a maximum disturbed area for the site. According to MNRF, a maximum disturbed area includes a calculation of “all areas within the boundaries of a licenced site which have been altered from their original condition and where final rehabilitation in accordance with the Act, the regulations, and the site plan has not been completed”.²⁶ In layman’s terms, this includes any area on the site not impacted by non-agricultural land-uses (parking lots, roadways, extraction area, overburden piles) that has not been rehabilitated back to an agricultural condition. MNRF included guidelines for calculating a maximum disturbed area.²⁷ Establishing a maximum disturbed area is a requirement under the Greenbelt Plan.²⁸ The Greenbelt Plan requires that any excess disturbed area above the maximum allowable disturbed area, as determined by MNRF, be rehabilitated back to

²⁶ Ministry of Natural Resources. Establishing Maximum Disturbed Area for Existing Aggregate Operations in the Protected Countryside of the Greenbelt Plan Area. *Government of Ontario*, <https://files.ontario.ca/environment-and-energy/aggregates/269499.pdf>

²⁷ *Ibid.*

²⁸ Government of Ontario. (2017). Greenbelt Plan. *Government of Ontario*, <https://files.ontario.ca/greenbelt-plan-2017-en.pdf>



an agricultural condition.²⁹ The aggregate producer responded to the Ministry acknowledging the policy requirement of the Greenbelt Plan,³⁰ but noted that their site was not located within this provincial plan area. The aggregate producer asked the Ministry to provide them with a policy that stated this requirement in their jurisdiction before making any site plan revisions. As this aggregate application is ongoing, this comment currently remains unresolved.

MNRF also noted that final rehabilitation is identified on the site plans as being “compatible with surrounding lands and land uses” but did not describe how the final rehabilitation “equates to, differs from, or enhances” surrounding lands. The

Ministry requested that the producer add information about the current adjacent land use and how the proposed final rehabilitation related to it in the context of an official plan designation. The aggregate producer responded to this comment clarifying that the existing land use is agricultural and that the rehabilitation of the proposed site (pit expansion) would be coordinated with agricultural rehabilitation of the existing, adjacent pit. While the revised site plans stated that agricultural rehabilitation will be coordinated with the rehabilitation of the adjacent pit, information regarding how it may “enhance it” is not reflected in the initial or revised site plans. 🌾

²⁹ *Ibid.*

³⁰ *Ibid.*





Discussion

The analysis of the site plans, AIA, AIA peer-review and comments from OMAFRA and MNRF highlighted the challenges faced by stakeholders in developing, reviewing, approving and implementing rehabilitation plans. It also provided insights into inconsistencies and misalignments between aggregate industry priorities, public policies and best practices for rehabilitation on agricultural land.

This section discusses the findings of the analysis in the context of three key themes:

- Nuances of Aggregate Expansions
- Use of Vague Language and Lack of Detail
- The Importance of Establishing Baseline Soil Capability

Nuances of Aggregate Expansions

One unique aspect of this case study is that it is an application for an expansion of a pre-existing pit operation. The aggregate producer applying for the expansion believed that certain planning policies did not apply in the context of a pit expansion. For example, the producer did not believe they needed to prepare an AIA for their ARA licence application. However, OMAFRA and MNRF pointed out that the application represents a new licence under the ARA and, therefore, an AIA was required. Because the local township had already requested an AIA be done as part of the municipal zoning by-law amendment application, the aggregate producer did not need to prepare a separate AIA for their ARA licence application. However, the aggregate producer is now aware of the provincial policy requirements regarding AIAs for pit expansions.

The AIA prepared for the zoning by-law amendment application noted that impacts to the agricultural system would be minimal because there was limited agricultural activity surrounding the site. However,

the adjacent lands were already being mined for aggregates, which is why the impacts to the agricultural systems were considered to be “minimal”. The adjacent lands were zoned as prime agricultural area and therefore required to be rehabilitated back to an agricultural condition. Furthermore, the adjacent lands would likely be in agricultural production if aggregate operations were not in place. As such, the interpretation that the proposed pit would not impact the agricultural system is flawed. This nuance was not addressed in comments from reviewing agencies.

Use of Vague Language and Lack of Detail

Site plan standards developed by MNRF require that site plan notes be “comprised of clear unambiguous language”.³¹ Despite this requirement, MNRF site plan standards for rehabilitation are relatively brief, offering limited direction to help guide aggregate producers in preparing “clear and unambiguous” site plans. OMAFRA Draft AIA Guidelines offer a more detailed overview of best practices for rehabilitation back to an agricultural condition.³² However, many of the best practices outlined in OMAFRA’s Draft AIA Guidelines are not requirements of the ARA and are not included in the site plan standards.³³ Moreover, OMAFRA’s Draft AIA Guidelines are not grounded in significant evidence, with only three citations in the document related

³¹ Ministry of Natural Resources and Forestry. (2020). Aggregate Resources of Ontario: Site Plan Standards. *Government of Ontario*, <https://files.ontario.ca/mnrf-aggregate-resources-of-ontario-site-plan-standards-2020-en-2021-03-18.pdf>

³² Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>

³³ Ministry of Natural Resources and Forestry. (2020). Aggregate Resources of Ontario: Site Plan Standards. *Government of Ontario*, <https://files.ontario.ca/mnrf-aggregate-resources-of-ontario-site-plan-standards-2020-en-2021-03-18.pdf>



to soil management, all of which are more than 15 years old.³⁴ Because of this, details related to the best practices may be limited and/or vaguely mentioned in site plans. This is illustrated in the site plans of this case study, which included ambiguous and vague rehabilitation notes.

Site plan language was especially vague when mentioning the timing of rehabilitation phases or practices. For example, the revised site plan noted that erosion control measures would be put in place if topsoil is stored for “prolonged periods”. However, the aggregate producer did not add a timeframe or define “prolonged period”. The site plan also stated that rehabilitation phases did not represent any specific or equal time period, meaning that rehabilitation could happen at any time.

Vague language was also common when the site plan mentioned practices that could enhance agricultural viability. This included suggestive language, such as “may be” instead of “will be”. MNRF flagged the use of suggestive terminology and asked that the aggregate producer revise the site plan to incorporate more prescriptive and clear language. Despite this, suggestive language remained in the revised site plans. This was most common for rehabilitation practices that exceeded minimum requirements. For example, the revised site plan stated that “side slopes may be flattened to increase agricultural viability”. Flattening side slopes was recommended in the AIA but is not a requirement under the ARA or MNRF’s site plan standards.³⁵

In addition to vague language, the rehabilitation plan also lacked detail and included several undefined concepts. The entire rehabilitation plan is captured in Table 1. There were no additional details, definitions, or specifications on the site plan. Terminology like “a healthy vigorous growing condition” was not defined in the rehabilitation plan, nor were there metrics to measure “healthy vigorous growing conditions”. There was no mention of Canada Land Inventory (CLI) classifications of the site pre-extraction or post-extraction, despite this classification being the basis for measuring soil capability. In addition, many of the rehabilitation processes were not evidence-based. For example, the aggregate producer did not provide evidence to support the depths of topsoil and subsoil that would be achieved as part of the rehabilitation. Moreover, while the site plans included soil testing pre- and post-extraction, they did not include continuous soil monitoring (i.e., ongoing soil testing) throughout progressive rehabilitation. The site plan simply stated that post-extraction soil testing would inform cropping practices and/or soil amendments required but did not provide any specific practices that would be used to maintain or enhance soil health as part of the rehabilitation process. A lack of detail, metrics and undefined terms may adversely impact rehabilitation outcomes.

The AIA prepared for the licence application made very clear recommendations, such as ensuring slope contours on the pit floor are as uniform as possible and avoiding travel over soils and rehabilitated areas to minimize impacts to soil structure. Despite best practices being clearly outlined in the AIA, they were not implemented into the site plans.

³⁴ Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>

³⁵ Ministry of Natural Resources. (2020). Aggregate Resources of Ontario: Site Plan Standards. *Government of Ontario*, <https://files.ontario.ca/mnrf-aggregate-resources-of-ontario-site-plan-standards-2020-en-2021-03-18.pdf>



The Importance of Establishing Baseline Soil Capability

Aggregate extraction sites in prime agricultural areas, on prime agricultural land must be rehabilitated back to an agricultural condition, defined as “a condition in which substantially the same areas and same average soil capability for agriculture is restored”.³⁶ To ensure that the same average soil capability for agriculture is restored, it is important to establish baseline soil characteristics and soil capability at the site prior to extraction. The revised site plans for this case study site included important notes to ensure that baseline soil capability would be established to inform agricultural rehabilitation techniques.

Incorporating this content into revised site plans involved some friction between the aggregate producer and OMAFRA. Part of this friction related to inconsistencies in the CLI land class designations listed in the AIA. Comments from OMAFRA worked to ensure that the aggregate producer used the provincial OMAFRA AgMaps website to source information on

CLI land classes to inform baseline soil capability ratings.³⁷ While the initial site plans did not include pre-extraction or post-extraction soil testing, the AIA and AIA peer-review recommended soil testing. The aggregate producer did not include soil testing on the site plan until OMAFRA highlighted the discrepancy between the AIA and the site plans and emphasized the importance of soil testing for establishing baseline soil capability. In the end, language related to soil testing was added to the rehabilitation notes of the site plans. This included analyzing pre- and post-extraction soil characteristics, including macro and micronutrients, pH, cation exchange capacity (CEC), organic matter, soil texture, structure and bulk density. The revised site plans also stated that results from soil analysis would inform the use of soil amendments and cropping practices “to ensure substantially the same average soil capability for agriculture that existed pre-extraction is restored”. While soil testing pre- and post-extraction is not a requirement of the ARA, it was included in the AIA and in comments from OMAFRA as a best practice. 🌱

³⁶ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

³⁷ Ministry of Agriculture, Food, and Agribusiness. AgMaps. *Government of Ontario*, <https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA>





Conclusions

This case study focused on the rehabilitation plan included in a licence application for a proposed aggregate pit expansion on agricultural land in Ontario. The analysis included documents related to the rehabilitation plan at the proposed site, including site plans (initial and revised), the AIA requested by the local township to support a zoning by-law amendment application, the AIA peer-review requested by the regional municipality and comments from both MNRF and OMAFRA pertaining to the proposed post-extraction rehabilitation process. The aggregate application for this site has not yet been approved, and therefore, the final site plans and rehabilitation plans are subject to change.

The proposed pit expansion was located in a prime agricultural area, with Class 1, Class 2 and Class 4 soils, indicating overall high soil capability for agricultural crops. The site is owned by the aggregate producer and is currently being leased to a local farmer. Farm operations include row crop production, rotating between soybeans and corn. If the aggregate producer receives a zoning by-law amendment from the local township, aggregate extraction will be permitted on the site as an interim use, provided that the site is rehabilitated back to an agricultural condition following the conclusion of extractive activities. The site plans submitted with the licence application outline how agricultural rehabilitation would be achieved.

Findings from the analysis indicate that the aggregate producer applying for the licence under the ARA followed minimum requirements for

rehabilitation as per the ARA and site plan standards. This was exhibited in the initial rehabilitation plan submitted with the licence application, which excluded many best practices (Table 2). However, both MNRF and OMAFRA recommended that the aggregate producer go above minimum requirements to ensure agricultural viability following rehabilitation. This included incorporating certain best management practices, such as only handling topsoil in dry, unfrozen conditions and sampling the soils before and after extraction to ensure lands are truly restored to the average or above average soil capability. While these best management practices were incorporated into revised site plans, other recommendations for rehabilitation detailed in the AIA were not. Moreover, the revised site plans remained vague and ambiguous in certain areas, especially when mentioning timelines of rehabilitation. 🌾





Appendix A: Project Information

This case study report is a part of a broader research project: **Developing Evidence-based Guidelines for the Rehabilitation of Aggregate Extraction Sites in Prime Agricultural Areas in Ontario**. The overall goal of this project is to develop practical, evidence-based guidelines for rehabilitating aggregate extraction sites on agricultural land. Specifically, the project will:

- Identify key soil health properties and indicators that support rehabilitation to agricultural land uses.
- Evaluate evidence-based rehabilitation best practices for building and maintaining soil health that supports productive agricultural land.
- Assess recurring challenges related to rehabilitation in licence applications, site plans, rehabilitation plans and agricultural impact assessments for sites on agricultural land.
- Develop standard protocols for demonstrating and confirming rehabilitation measures are in place.

The rehabilitation of pits and quarries is not only mandated; it is a vital step in the sustainable management of aggregate resources in the province. Moreover, the quick return of these sites to an agricultural condition post-extraction is critical for minimizing the loss of productive farmland. This loss not only affects food security directly but also underscores the importance of expedited rehabilitation efforts.

The PPS (2024) requires that prime agricultural areas be protected for long-term use.³⁸ It allows the extraction of aggregates in prime agricultural areas, on prime agricultural land and specialty crop areas as an interim land use, stipulating that extraction sites must be returned to an agricultural condition. For prime agricultural areas, agricultural condition is defined as “a condition in which substantially the same areas and same average soil capability for agriculture is restored.” For specialty crop areas,

the PPS (2024) stipulates that “the same range of specialty crops common in the areas can be achieved, and, where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crops will be maintained or restored.” The PPS (2024) further requires that both progressive and final rehabilitation must be carried out.

For sites where rehabilitation to an agricultural condition is required, the collective results of this project will:

- Reduce delays and uncertainty in the approval process and minimize revisions of applications, site and rehabilitation plans and technical reports by adding clarity and transparency to the commenting and approval process.
- Lead to enhanced consistency and efficiency of the licence commenting and approval process.
- Provide all stakeholders with access to an evidence-based set of parameters/indicators and common/standard language and approaches for inclusion in site and rehabilitation plans and technical reports.
- Allow OMAFA (and other review and commenting agencies) to provide timelier, more consistent reviews and enhanced guidance to applicants on, 1) what constitutes rehabilitation to an agricultural condition and same average soil capability for agriculture and; 2) the details to include in applications, site plans and relevant technical reports to fully describe how sites will be returned to an agricultural condition.
- Lead to improved, more consistent rehabilitation of sites in prime agricultural areas and specialty crop areas and increased compliance.

³⁸ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. Government of Ontario, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>; Clark, A., Holy, K., Lemay, A., Fullerton, C. (2025). Policy Timeline – the Intersection of Agriculture and Aggregates. VISTA Science and Technology.



Appendix B: Glossary of Terms

Aggregate Resources Act (ARA): Legislation that directs the management of aggregate resources in Ontario; controls and regulates aggregate operations on Crown and private lands; enforces the rehabilitation of land from which aggregates have been extracted; and works to minimize adverse impacts to the environment in respect to aggregate operations.³⁹ Mechanisms utilized to enforce the ARA include aggregate licences and site plan documents. The Ministry of Natural Resources (MNR) is responsible for the administration of aggregate licences and enforcing the ARA. While the ARA governs aggregate extraction, the aggregate industry must also comply with provincial planning policies (the PPS and the Greenbelt Plan) and municipal policies.

Agricultural Condition: In prime agricultural areas, agricultural condition is defined as “a condition in which substantially the same areas and same average soil capability for agriculture will be maintained, restored or enhanced”.⁴⁰ In specialty crop areas, agricultural condition is defined as “a condition in which substantially the same areas and same average soil capability for agriculture are restored, the same range and productivity of specialty crops common in the area can be achieved, and, where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crop production will be maintained, restored or enhanced”.⁴¹

Agricultural Impact Assessment (AIA): An “evaluation of potential impacts of non-agricultural uses on the agricultural system. The assessment recommends ways to avoid or if avoidance is not possible, minimize and mitigate adverse impacts”.⁴²

Canada Land Inventory (CLI) for Agriculture: An inventory and “interpretative system used to assess the effects of climate and soil characteristics on the limitations of land for growing common field crops”.⁴³ The system evaluates soil productivity, the range of common field crops that can be grown on specific soil classes and management best practices to support the conservation of soils for field crop production.⁴⁴

Comprehensive Rehabilitation: “Rehabilitation of land from which mineral aggregate resources have been extracted that is coordinated and complementary, to the extent possible, with the rehabilitation of other sites in an area where there is a high concentration of mineral aggregate operations.”⁴⁵ Comprehensive rehabilitation is often proposed for pit expansions, which enables adjacent licenced pits to be rehabilitated to a uniform post-extraction land-use (e.g., agriculture).

Greenbelt Plan: The Greenbelt Plan (2017) is a land-use planning framework established under the Greenbelt Act to provide protection to agricultural lands, natural heritage sites and water resources in Ontario’s Greater Golden Horseshoe region.⁴⁶ The plan includes the Protected Countryside, Urban River Valleys and lands within the Niagara Escarpment Plan, Oak Ridges Moraine Conservation Plan and Parkway Belt West Plan areas. The plan works

³⁹ Government of Ontario. (2021). Aggregate Resources Act. *Government of Ontario, E-laws*, <https://www.ontario.ca/laws/statute/90a08>

⁴⁰ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

⁴¹ *Ibid.*

⁴² *Ibid.*

⁴³ Ministry of Agriculture, Food, and Agribusiness. (2024). Soil capability for agriculture in Ontario. *Government of Ontario*, <https://www.ontario.ca/files/2024-08/omafa-soil-capability-for-agriculture-in-ontario-en-2024-08-15.pdf>

⁴⁴ Ministry of Agriculture, Food, and Agribusiness. (2024). Soil capability for agriculture in Ontario. *Government of Ontario*, <https://www.ontario.ca/files/2024-08/omafa-soil-capability-for-agriculture-in-ontario-en-2024-08-15.pdf>

⁴⁵ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

⁴⁶ Government of Ontario. (2017). Greenbelt Plan. *Government of Ontario*, <https://files.ontario.ca/greenbelt-plan-2017-en.pdf>



alongside the PPS to ensure sustainable resource use and environmental and agricultural preservation.

Growth Plan for the Greater Golden Horseshoe:

Growth Plan for the Greater Golden Horseshoe (2019), was a provincial plan for the Greater Golden Horseshoe region of Ontario, which spans much of Southern Ontario, including the western boundaries of Lake Ontario, Lake Simcoe, the Georgian Bay area of Lake Huron and the eastern boundary of Lake Erie. Under the Growth Act, this provincial plan set out the regulatory framework for land-use planning policies in the Greater Golden Horseshoe. The plan worked alongside the Provincial Policy Statement (2020), until the PPS came into effect in 2024.⁴⁷

Maximum Disturbed Area: A calculation of “all areas within the boundaries of a licenced site which have been altered from their original condition and where final rehabilitation in accordance with the [Aggregate Resources] Act, the regulations, and the site plan has not been completed”.⁴⁸ This includes any area on the site that has been impacted by non-agricultural land-uses and has not been rehabilitated back to an agricultural condition. MNR includes guidelines for calculating a maximum disturbed area.⁴⁹ Establishing a maximum disturbed area is a requirement under the Greenbelt Plan.

Mineral Aggregates Resources: Gravel, sand, clay, earth, shale, stone limestone, dolostone, sandstone, marble and granite suitable for construction, manufacturing and maintenance purposes.⁵⁰

Overburden: All material laying between the subsoil and the workable mineral aggregate deposit. “Many sand and gravel deposits in Ontario do not contain overburden material – engineers often use the term to refer to material lying above the workable deposits, including topsoil and subsoil.”⁵¹

Prime Agricultural Areas: Regions where prime agricultural lands predominate, including specialty crop areas and associated Canada Land Inventory Class 4 through 7 lands, and additional areas with a local concentration of farms which exhibit characteristics of ongoing agriculture. “Prime agricultural areas may be identified by a planning authority based on provincial guidance or informed by mapping obtained from the Ontario Ministry of Agriculture, Food and Agribusiness and the Ontario Ministry of Rural Affairs or any successor to those ministries.”⁵²

Prime Agriculture Land: defined as land with high capability for agriculture, including specialty crop areas and Canada Land Inventory Class 1, 2, and 3 lands.⁵³

Provincial Planning/Policy Statement (PPS): The Provincial Planning/Policy Statement, is issued under the authority of the Ontario Planning Act. The PPS consists of policies that stipulate the use and development of land, including agricultural and aggregate land uses. The PPS (2024) replaced PPS (2020) and A Place to Grow: A Growth Plan for the Greater Golden Horseshoe (2019). Previous version of the PPS include 1997, 2005 and 2014.⁵⁴

⁴⁷ Government of Ontario. (2020). A Place to Grow: Growth Plan for the Greater Golden Horseshoe. *Government of Ontario*, <https://files.ontario.ca/mmah-place-to-grow-office-consolidation-en-2020-08-28.pdf>

⁴⁸ Ministry of Natural Resources. Establishing Maximum Disturbed Area for Existing Aggregate Operations in the Protected Countryside of the Greenbelt Plan Area. *Government of Ontario*, <https://files.ontario.ca/environment-and-energy/aggregates/269499.pdf>

⁴⁹ *Ibid.*

⁵⁰ Government of Ontario. (2021). Aggregate Resources Act. *Government of Ontario, E-laws*, <https://www.ontario.ca/laws/statute/90a08>

⁵¹ Mackintosh, E. E. and Mozuraitus, E. J. (1982). Aggregates and the Aggregate Industry: Industrial Mineral Background Paper 3. *Ministry of Natural Resources*, https://toarc.com/wp-content/uploads/2019/02/Agri_Aggre.pdf

⁵² Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

⁵³ *Ibid.*

⁵⁴ Open Council. (2024). Ontario Provincial Planning Statement (PPS) tells municipalities how to handle growth and development. (2024). Open Council. <https://opencouncil.ca/provincial-planning-statement/>. Penaud, A., Holy, K., Lemay, A., Fullerton, C. (2025). Policy Timeline – the Intersection of Agriculture and Aggregates. VISTA Science and Technology.



Ripping: A remedial approach utilized to alleviate soil compaction and promote root penetration, infiltration and development of soil structure on rehabilitated lands.⁵⁵ It is recommended that ripping be constrained to the depth of each soil horizon (topsoil or subsoil) to minimize mixing soil layers.⁵⁶

Soil Capability: The suitability of soils for growing field crops. Higher soil capability aligns with higher CLI classes.⁵⁷

Soil Health: The “ability of soil to support crop growth without becoming degraded or otherwise harming the environment”. Soil health includes physical chemical and biological components, as outlined by OMAFA.⁵⁸

Specialty Crop Area: Areas within the agricultural system whereby specialty crops, such as tender fruits (peaches, cherries, plums), grapes, vegetable crops, greenhouse crops and crops from agriculturally developed organic soil predominate.⁵⁹ According to the PPS (2024), specialty crop areas are typically the result of:

- “Soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both;
- Farmers skilled in the production of specialty crops; and
- A long-term investment of capital in areas such as crops, drainage, infrastructure and related facilities and services to produce, store, or process specialty crops.”⁶⁰

Stripping: A process of removing the topsoil, subsoil and overburden material located above mineral aggregate deposits. Prior to extraction, soil studies can be utilized to identify the depths of each soil zone and inform a stripping plan to minimize mixing of soil layers.⁶¹

Subsoil: The zone immediately beneath the topsoil, which may extent to a depth of 1 m or more. “Under natural conditions, the subsoil is often well structured, and contains numerous plant roots... In summer drought periods, plants may obtain much of their moisture requirements from this zone.”⁶²

Topsoil: The uppermost zone of the soil, often darker in colouration due to the accumulation of organic matter. “On arable agricultural lands, it is normally restricted to the depth of cultivation, which is about 15 to 30 cm.”⁶³

⁵⁵ Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>

⁵⁶ *Ibid.*

⁵⁷ Ministry of Agriculture, Food and Agribusiness. (2024). Soil Capability for Agriculture in Ontario. *Government of Ontario*, <https://www.ontario.ca/files/2024-08/omafra-soil-capability-for-agriculture-in-ontario-en-2024-08-15.pdf>

⁵⁸ Ministry of Agriculture, Food and Agribusiness. (2024). New Horizons: Ontario’s Agricultural Soil Health and Conservation Strategy. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-new-horizons-ontarios-agricultural-soil-health-and-conservation-strategy-en-2024-04-04.pdf>

⁵⁹ Ministry of Municipal Affairs and Housing (2024). Provincial Planning Statement. *Government of Ontario*, <https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf>

⁶⁰ *Ibid.*

⁶¹ Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>

⁶² Mackintosh, E. E. and Mozuraitus, E. J. (1982). Aggregates and the Aggregate Industry: Industrial Mineral Background Paper 3. *Ministry of Natural Resources*, https://toarc.com/wp-content/uploads/2019/02/Agri_Aggre.pdf

⁶³ *Ibid.*



Appendix C: Agricultural Impact Assessment Methodology

The AIA for this licence application was prepared at the request of the local township for the purposes of a zoning by-law amendment application. The AIA outlined site features and conditions, potential impacts to prime agricultural land and the agricultural system and provided recommendations for agricultural rehabilitation. The AIA was prepared by a consulting firm hired by the aggregate producer.

Based on the recommendations provided by OMAFRA's AIA Draft Guidance Document,⁶⁴ the AIA assessed impacts to agricultural operations and the agricultural system through two separate study areas: the "Primary Study Area" and the "Secondary Study Area". The Primary Study Area included: "all lands/properties which are potentially directly impacted by the proposed aggregate extraction operation". The Primary Study Area included the proposed licenced area and any lands immediately adjacent, within 120 m of the site, which "are potentially directly impacted by the operation (e.g., changes to surface drainage patterns". The Secondary Study Area included lands within 1 km of the case study site, which could "potentially be affected by indirect impacts of the proposed aggregate operation" such as traffic.

The primary methodology used to assess impacts to the primary and secondary study areas included a review of relevant documents and databases (e.g. municipal and provincial policy documents, existing documents on local soil, climate, drainage information and agricultural systems mapping databases and inventories). In addition to document review, the AIA included a review of "site specific information collected through field inventories". The field inventories included a "reconnaissance level soil confirmation survey and a land use survey of the surrounding area to identify agricultural operations, relative levels of agricultural investment, cropping patterns and mix of land uses". In all, this methodology offered a broad-level overview of potential impacts to the agricultural system. No other methodologies were listed in the AIA. 🌾

⁶⁴ Ministry of Agriculture, Food, and Rural Affairs. (2018). Draft Agricultural Impact Assessment (AIA) Guidance Document. *Government of Ontario*, <https://www.ontario.ca/files/2024-04/omafra-agricultural-impact-assessments-en-2024-04-03.pdf>





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