

# ***AGGREGATE RESOURCES ACT***

## ***SUMMARY REPORT***

### ***For A Pit Licence Application***

**Prepared for:** Arnott Brothers Construction Ltd. in support of an application for a **Class “A” pit licence to excavate more than 20,000 tonnes annually** pursuant to the Provincial Standards, Parts 1, 2 and 4 adopted by **Ontario Regulation 244/97 under the Aggregate Resources Act.**

Location of site: 958 Highland Line Road,  
Part Lot 6, Conc. 10 and 11, and Part Lot 5 in Conc. 10, including  
the closed road allowances between Lots 5 and 6 and between  
Conc. 10 and 11,  
Geographic Township Dalhousie, Municipality of Lanark Highlands,  
County of Lanark.

Prepared By: Gary McLaren



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Rev. 1

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## 1.0 INTRODUCTION

Milestone Aggregate Consulting Services Inc. has undertaken the preparation of a Summary Report which consolidates all technical requirements and notification and consultation requirements for an **application for a Class "A" pit licence to excavate more than 20,000 tonnes annually** pursuant to Provincial Standards, Parts 1, 2 and 4 adopted by **Ontario Regulation 244/97 under the Aggregate Resources Act**.

**Applicant:** Arnott Brothers Construction Ltd.  
36, Hwy 511, Perth ON. K7H 3C9

**Site Location:** 958 Highland Line Road.,  
Pt. Lot 6, Conc. 10 and 11, Pt Lot 5 Conc. 10  
including closed road allowances between Lots 5  
and 6 and between Conc 10 and 11, Geographic  
Twp. of Dalhousie, Municipality of Lanark  
Highlands,  
County of Lanark  
(See map figure 1.0)

**Project:** Class "A" Pit Licence Application to extract a  
maximum of 250,000 tonnes annually from a  
current licenced pit of 34.3 hectares to allow  
extraction below water for the existing site and an  
additional area of 5.8 hectares, for a total licence  
area of 40.1 hectares, subject to Part 1, 2 and 4 of  
the Provincial Standards under the Aggregate  
Resources Act

**Pit Name:** McKinnon Pit

**Owners:** Arnott Brothers Construction Limited

This report was triggered by an application for an amendment to a current licence to extract below water table for Lic.Ref. # 609261, consisting of 34.3 hectares and the expansion application of an adjoining 5.8 hectares for a total new licence area of 40.1 hectares pursuant to the compilation of the 4 Provincial Standards (Site Plan Standard; Technical Report and Information Standard; Amendment Standard; and Circulation Standard), adopted by Ontario Regulation 244/97 under the Aggregate *Resources Act*.

The Summary report contains the following:

- Application Form;
- Summary Statement;
- Site plans; and
- Technical Reports (Natural Environment, Archeological, Hydro Geological (water level)

The Recommended References in each of the 4 Provincial Standards were also considered for the consolidated applications as well as relevant sections of the **Aggregate Resources Program Policy and Procedures Manual (MNR, 2006)**. e.g. *A.R. 2.01.02 Licence Applications: New Properties and A.R.2.01.05, Licence Application: Summary Statement Report Standards, etc.*

This report may also serve to support an application to remove the holding designation from the current MAR-h zoning and amendment to the RU zoning on part of the subject property proposed for expansion of the licence.

On July 11, 2010, the Ministry of Natural Resources and Forestry issued a Class A pit licence to Crain Construction Limited for a 34.3-hectare pit for Pt. Lot 6, Concession 10 and 11, geographic township of Dalhousie, municipality of Lanark Highlands. The pit licence was transferred to Arnott Brothers Construction Ltd. September 5, 2019. An additional portion of Lot 6, Concession 10 was acquired by Arnott Brothers Construction Ltd. with the intention of expanding the current pit licence south of the current operation to Highland Line Road.

The Ontario Geological Survey, Aggregate Assessment for the County of Lanark ARIP 189 maps the Arnott site as good quality, granular A, 5/8's coarse aggregate. The existing operation, test pit digging and water well drilling on site, confirm these materials exist into the expansion area and below the water table.

The sand and gravel are considered a specialty aggregate and is in great demand in this market area and into the Ottawa market for use in asphalt for road building, concrete for structures, and filtration for water and sewer systems.

## 2.0 KEY PLAN - Satellite Images of McKinnon Pit expansion

Figure 1.0(a)

**Satellite Image showing existing licence pit and expansion area on Highland Line Road: County of Lanark Mapping Tool**



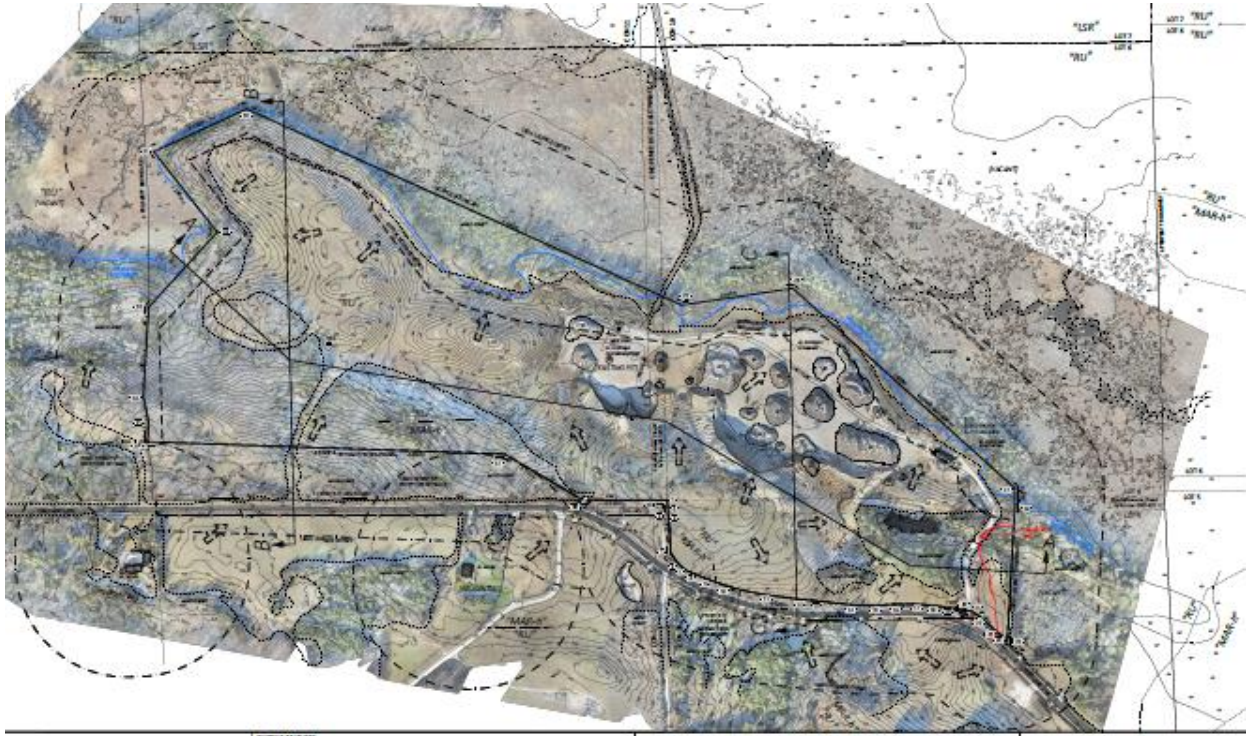
The "McKinnon Pit"  
958 Highland Line Road.,  
Pt. Lot 5 and 6, Conc. 10 and 11, and Pt Lot 5 Conc. 10 Geo. Twp. Dalhousie,  
Municipality Lanark Highlands



Arnott Bros. "McKinnon Pit  
Highland Line Road,

Figure 1.0 (b)

**Satellite Image with land parcel fabric: Lanark County mapping tool, Tech Surveys contours, McIntosh Perry Site Plan**



### 3.0 SITE PLAN STANDARDS

Site Plans are the primary regulatory instrument used to indicate existing land uses, sensitive areas and control social and environmental impacts associated with the operation and rehabilitation of pits and quarries. The site plans for this particular site were prepared pursuant to Part 1 of the Provincial Site Plan Standards, as adopted by **Ontario Regulation 244/97 under the Aggregate Resources Act**. The site plans are included as Appendix B to this report.

### 4.0 SUMMARY STATEMENT

The Summary Statement was prepared pursuant to Part 2 of the Provincial Standards entitled **Aggregate Resources of Ontario: Technical Reports and Information Standards, August 2020**. The terms of reference for the Summary Statement is identified in Part 1.0 of this Standard, and acts as a summary of the findings, potential impacts and recommended mitigation measures proposed from the technical reports which are placed into enforceable conditions and added to the site plan. The Aggregate Resources Program Policies and Procedures manual (MNR, 2006), particularly, **Licence Applications – Summary Statement Report Standards, section A.R. 2.01.05** was referenced in preparation of this report.

The "McKinnon Pit" is directly west of several licenced pit operations at Adam's corners (9<sup>th</sup> Concession) and other sites on either side of MacDonald's Corner's Road further south. These are all part of the surficial sand and gravel ridge identified in ARIP 189 for the country of Lanark. The existing Arnott Brother's "McKinnon Pit" licence consists of a 34.3, Class A licence for an annual extraction of 150,000 tonnes annually and is limited to 1.5 metres above the water table. The expansion area adds an additional 5.8 hectares to the current licence for a total area of 40.1 hectares. The extraction area would be limited to 31.6 hectares. The entire site would be extracted below water table creating a lake and wetland environment that would complement the natural wetland swamp bordering the site to the north-west and east. The new annual tonnage condition will be limited to 250,000 tonnes annually.

The Summary Statement shall consider planning and land use compatibility, effects on agricultural resources, impacts to source water protection, the quality and quantity of resource, impacts from traffic, haulage routes, and entrance/exit locations, suitability of the progressive and final rehabilitation for the site and adjacent lands. This report further includes statements regarding the potential for any surface water and ground water impacts to water table, and direction of surface water runoff.



#### 4.1. Any planning and land use considerations (*section 1.2 of the Summary Statement Standard*)

##### **Provincial Policy Statement (PPS) 2020**

Provincial interests in land use planning are implemented through the Provincial Policy Statement (PPS) (*Ministry of Municipal Affairs, 2020*) issued under Section 3 of the *Planning Act*. All decisions affecting planning matters made by any planning authority "shall be consistent" with the policies contained in the PPS.

The PPS, 2020 protects mineral aggregate resources for long term use.

##### **Section 2.5.2.1 states:**

***As much mineral Aggregate resources as is realistically possible shall be made available as close to market as possible.***

This site has been mapped and designated in the Lanark Highlands Official Plan as ***Sand and Gravel Resource*** area and zoned RU and MAR-h as indicated by the Township of Lanark Highlands, Dalhousie and North Sherbrooke, 'Schedule A2' to by-law no. 2003, 451 and as indicated on the existing features site plan.

The PPS also states that extraction shall occur in a manner that minimizes the impacts of operations on social values and the environment. The majority of this site is already licenced and has caused no complaints from neighbours concerning the operation to date (crushing, screening and truck hauling from the site).

##### **Section 2.5.2.2 states:**

***Extraction shall be undertaken in a manner which minimizes social, economic and environmental impacts.***

Mitigation of environmental and social impacts are implemented through site plan control based on recommendations from technical reports prepared by qualified professionals. These recommendations are incorporated into enforceable conditions on the site plan and licence that directs the operation. The sequence of operation and rehabilitation techniques and phasing for the site plan were developed from the recommendations and mitigation measures provided by the technical reports. There are also Operational Standards that support the licence issued and regulated by the Province.

The PPS also addresses progressive and final rehabilitation of the extraction site.

**Section 2.5.3.1 states:**

***Progressive and final rehabilitation shall be required to accommodate subsequent land uses, to promote land use compatibility, to recognize the interim nature of extraction, and to mitigate negative impacts to the extent possible. Final rehabilitation shall take surrounding land use and approved land use designations into consideration.***

The Aggregate Resources Act supports the PPS by requiring the site to be rehabilitated back to its former use or a use compatible with the surrounding land use. In this particular case, the site will be moved from marginal farm land, pasture, and mixed bush, to a small pond and wetland swamp environment similar to the lands directly north west and east of the site. The rehabilitation plan supports the natural environment values of the adjacent wetland and would not detract from surrounding passive agricultural use, mixed forest and low impact residential development south of the site.

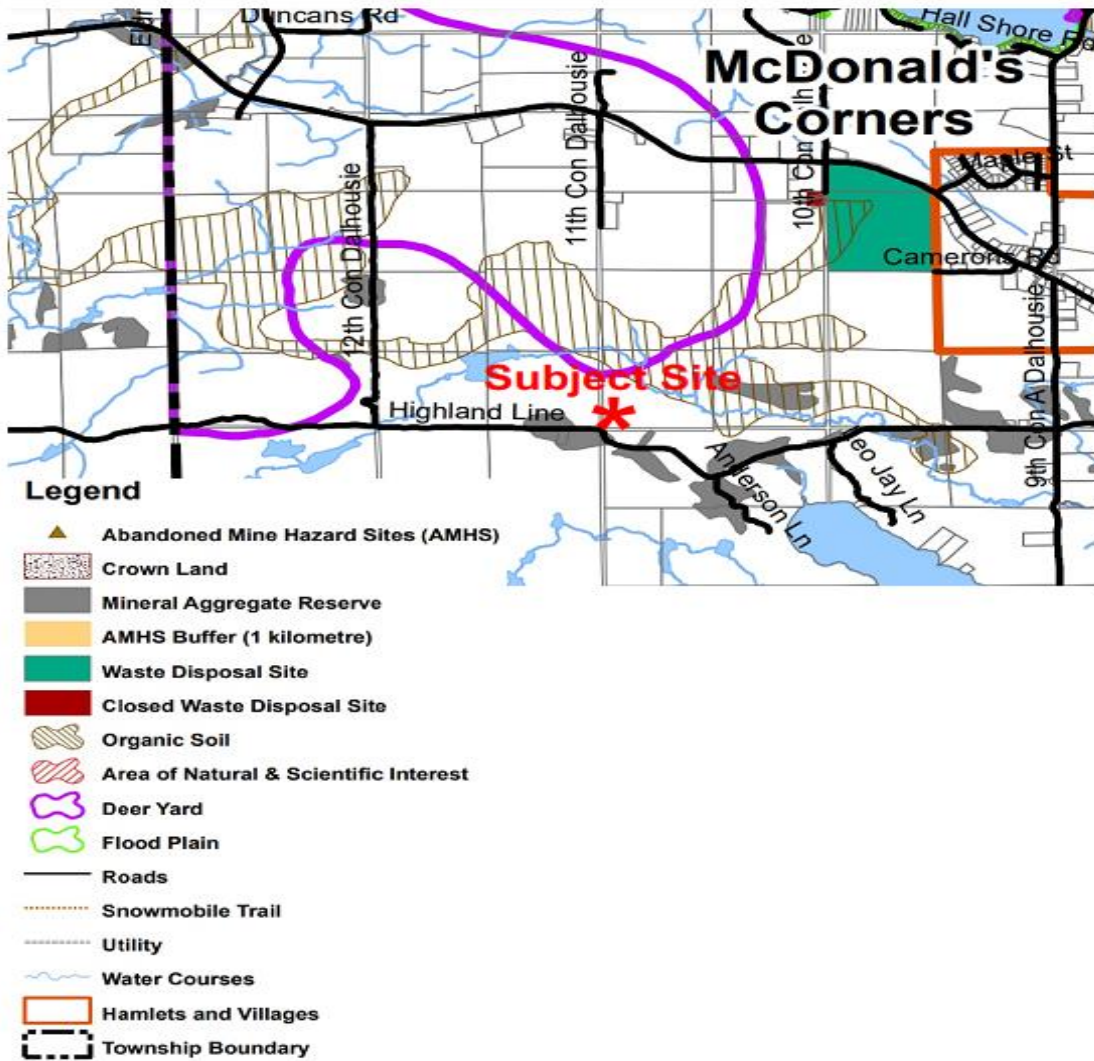
The development of the McKinnon pit already exists and is consistent with the 2020 PPS. The site is situated on a known glaciofluvial deposit containing active and depleted sand and gravel sources east along the resource area. Highland Line Road and MacDonald's Corners Road is a primary route that is already used for the haulage of specialty aggregates, (sand and gravel) for use in asphalt and concrete and filter sands to service the local and regional markets as far away as the west end of Ottawa.

### **Lanark Highlands Official Plan**

The Official Plan for the municipality of Lanark Highlands designates the subject site as ***Rural Communities on Schedule 'A' Map Land use and Transportation*** and ***Mineral Aggregate Reserve on Schedule 'B', Development Constraints***. This designation permits sand and gravel pits as the primary land use, along with related uses such as asphalt plants and concrete plants. Although a portable asphalt and concrete batch plant might be utilized on this site for a specific public authority contract, regular operation of a permanent or portable asphalt or concrete batch plant is not a permitted use for this operation without proper zoning. This aggregate pit operation, as proposed, is a permitted use in the Township's Official Plan.

Arnott Bros. "McKinnon Pit"  
Highland Line Road,

Figure 2.0 Lanark Highlands Official Plan Schedule "B" Development Constraints



## Zoning By-law

The proposed extraction site is located within a Mineral Aggregate Reserve holding (MAR-h) zone and a Rural (RU) zone according to Dalhousie/North Sherbrooke Schedule "A" 2 zoning map (see **Figure 3**). The text of the by-law indicates there are 3 symbols relating to pits and quarries. MXP for pit, MXQ for quarry and MXR for pit or quarry reserve.

The following are excerpts from applicable sections of the Zoning By-Law 2003-451 Lanark Highlands:

### **4.32 Special Setbacks, Minimum Distance Separation and Influence Areas**

#### **3. Pits and Quarries:**

**a) The minimum setback distances for pits and quarries from property lines shall be as set out in the Aggregate Resources Act.**

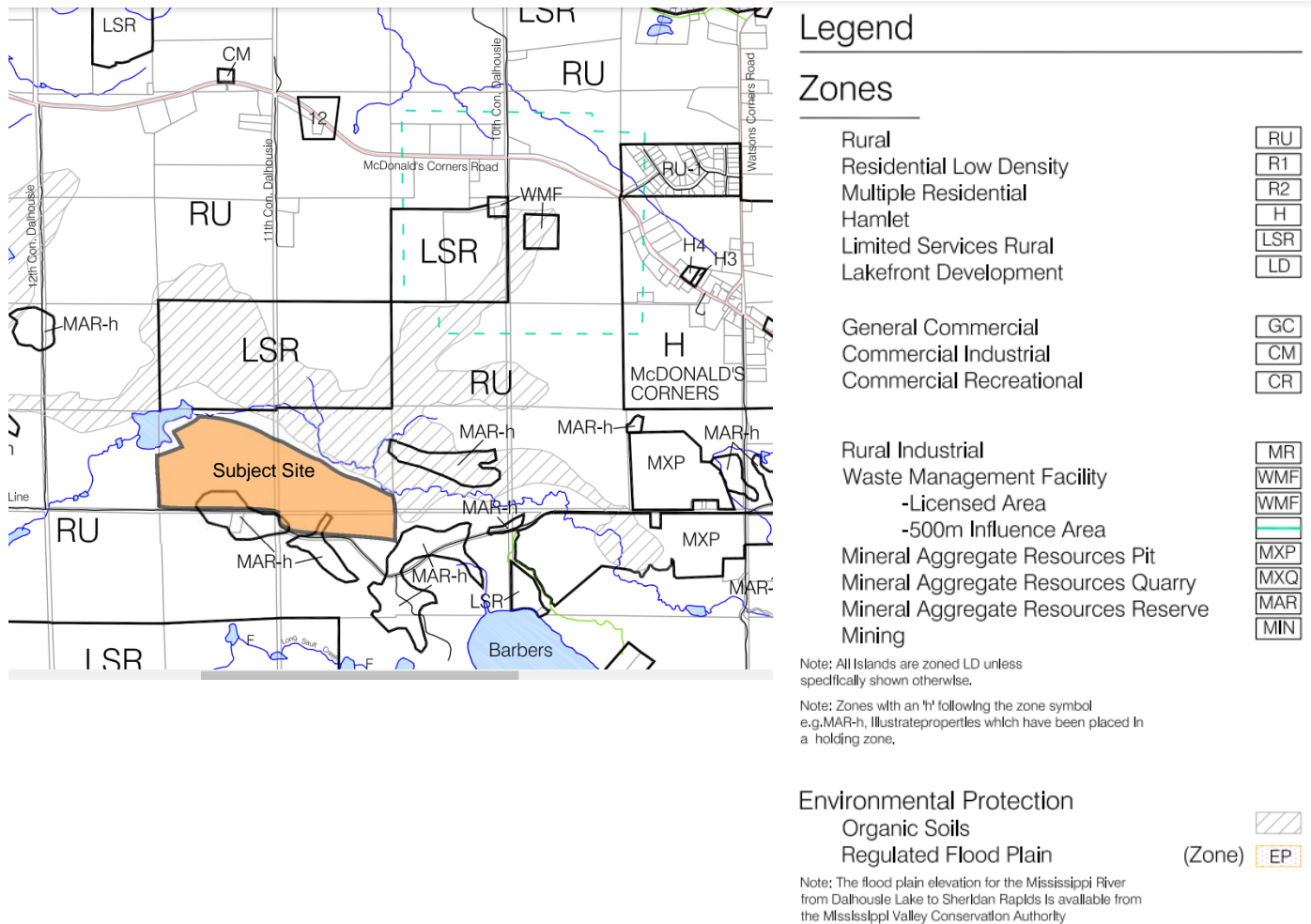
**b) Within an influence area of 150 m (492.1 ft.) of a pit excavated Township of Lanark Highlands Zoning By-law No. 2003-451 File P-920 November 18, 2003 Page 36 above the water table or aggregate reserve, or 300 m (984 ft.) of a pit excavated below the water table, measured from the zone boundary of a Mineral Aggregate (MXP or MAR) Zone, or 500 m (1,640 ft.) from the zone boundary for a quarry (MXQ Zone), or 750 m (2,460 ft.) from the zone boundary of the Tatlock Quarry respectively, the proponent of any sensitive land use shall be required to demonstrate that there will be no adverse or potential impacts (i.e. visual impacts, noise, dust, traffic or ground water quality or quantity) created on the sensitive land use, or impacts that cannot otherwise be appropriately mitigated by the proponent from an existing or proposed aggregate operation. Adverse impacts may be addressed by means of a phasing plan, rehabilitation plan, landscaping berming, specified truck routes or other measures acceptable to Council.**

A completed application has been made to the Province for an expanded licence to extract aggregate materials from below the water table below the existing licence location and from additional lands between the current south licence boundary and the Highland Line Road.

The expansion area in Lot 5 abutting Highland Line Road is currently zoned MAR-h and Rural which requires a zoning by-law amendment and removal of the holding symbol for pit expansion in this area. Prior to issuance of an expanded pit licence for this site, a report must be submitted and authorized by the Township's planning staff indicating the holding category for this zone has been removed and the mineral extraction zone has been adopted in full force to allow extractive industrial land use on the proposed site.

Part of the concession road has been closed between Concessions 10 and 11 in Lot 6 and that part of the road allowance between Lots 5 and 6 in Concession 10. These road closures were enacted by By-law 2007- 873 and are part of the current licence area and the expansion proposal on Lot 5 Concession 10.

Figure 3 Lanark Highlands - Dalhousie North Sherbrooke Schedule 'A' 2 Zoning Map





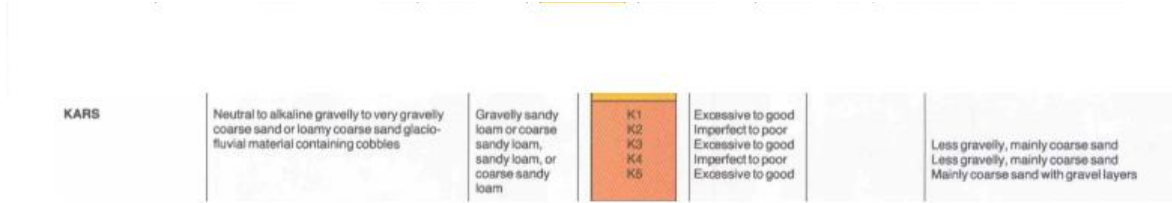
#### 4.2 Agriculture classification, Canada Land Inventory (CLI) for soils

The Canada Land Inventory (CLI) is the primary basis for determining soil classification and capability for agriculture and competing land uses in Ontario. Proponents and approval authorities for pit and quarry applications need to consider CLI information to meet PPS policies 2.3.1 (protection of prime agricultural areas) and 2.5.4.1 (rehabilitation requirements in prime agricultural areas on prime agricultural land). CLI classification is also considered when applying for a license under the Aggregate Resources Act. Section 1.1 of the Summary Statement standard, indicates that the CLI map shall be used to determine classification of soils and rehabilitation techniques if the site is to be returned to agricultural land use.

*The agricultural classification of the proposed site, using Canada Land Inventory Classes;*

The Canada Land Inventory (CLI) (*Department of Agriculture, 1966*) for soils lists this site as **Class 7** soils (See figure 4(a). The more refined CLI soils map for Lanark County (1967) (see Figure 4(b) indicates Class 6 soil for the boundary which aligns with the Class 6 soils identified to the east and west of the site along the glacial fluvial gravel ridge. Class 6 soils class contain no arable culture or permanent pasture capability. The glacial fluvial deposit of sand and gravel borders a large organic soil classification to the north which is identified as an unevaluated wetland and has no agricultural capacity. The site has most recently for aggregate extraction, agricultural pasture land and natural mixed forest dipping to the Long Sault creek and wetland to the north.

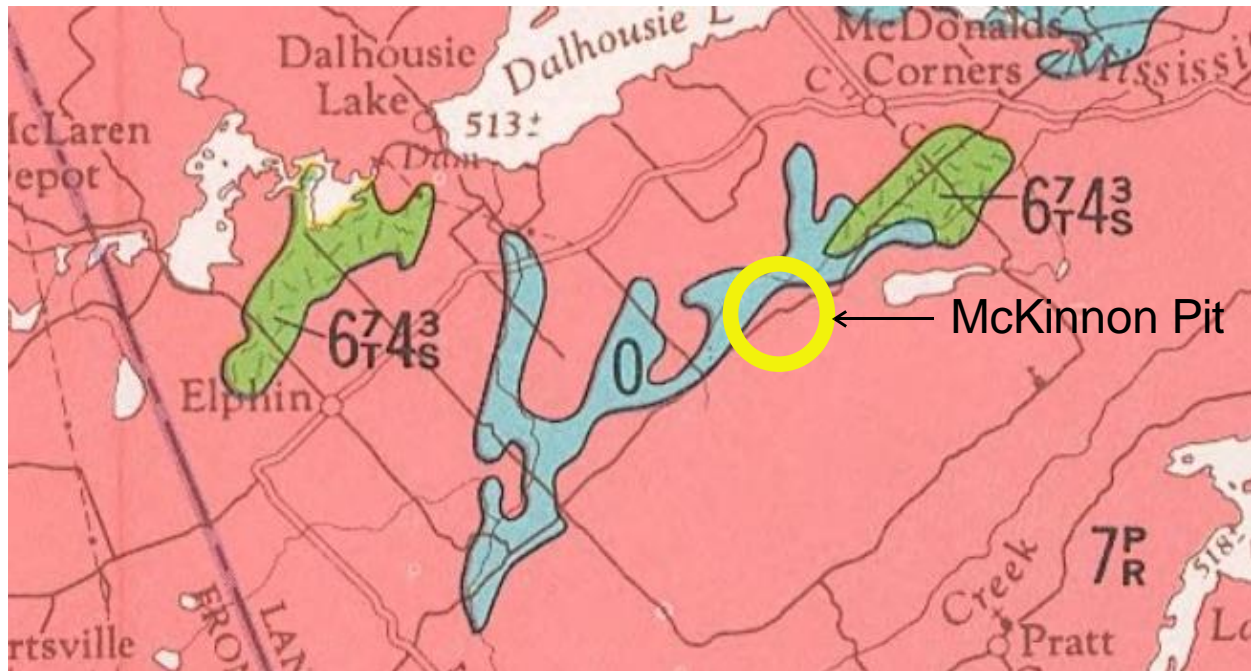
Figure 4.0 (a) Canada Land Inventory Map, 1966



### STONINESS CLASSES

Class	Description	% Stones on Surface
\$1.....	Slightly stony.....	0.01 - 0.1
\$2.....	Moderately stony.....	0.1 - 3.0
\$3.....	Very stony.....	3.0 - 15.0
\$4.....	Exceedingly stony.....	15.0 - 50.0
\$5.....	Excessively stony.....	>50.0

Stones have a diameter greater than 15 cm.



**CLASS 1** Soils in this class have no significant limitations in use for crops. The soils are deep are well to imperfectly drained, hold moisture well, and in the virgin state were well supplied with plant nutrients. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for a wide range of field crops.

**CLASS 2**

Soils in this class have moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep and hold moisture well. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management they are moderately high to high in productivity for a fairly wide range of crops.

**CLASS 3**

Soils in this class have moderately severe limitations that restrict the range of crops or require special conservation practices. The limitations are more severe for Class 2 soils. They affect one or more of the following practices; timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. Under good management they are fair to moderately high in productivity for a fair range of crops.

**CLASS 4**

Soils in this class have severe limitations that restrict the range of crops or require special conservation practices or both. The limitations seriously restrict one or more of the following practices; timing and ease of tillage; planting and harvesting; choice of crops and methods of conservation. The soils are low to fair in productivity for a fair range of crops but may have high productivity for a specially adopted crop.

**CLASS 5**

Soils in this class have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible. The limitations are so severe that the soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants and may be improved by use of farm machinery. The improvement practices may include clearing of bush, cultivation, seeding, fertilizing, or water control.

**CLASS 6**

Soils in this class are capable only of producing perennial forage crops, and improvement practices are not feasible. The soils provide some sustained grazing for farm animals, but the limitations are so severe that improvement by use of farm machinery is impractical. The terrain may be unsuitable for use of farm machinery, or the soils may not respond to improvement, or the grazing season may be very short.

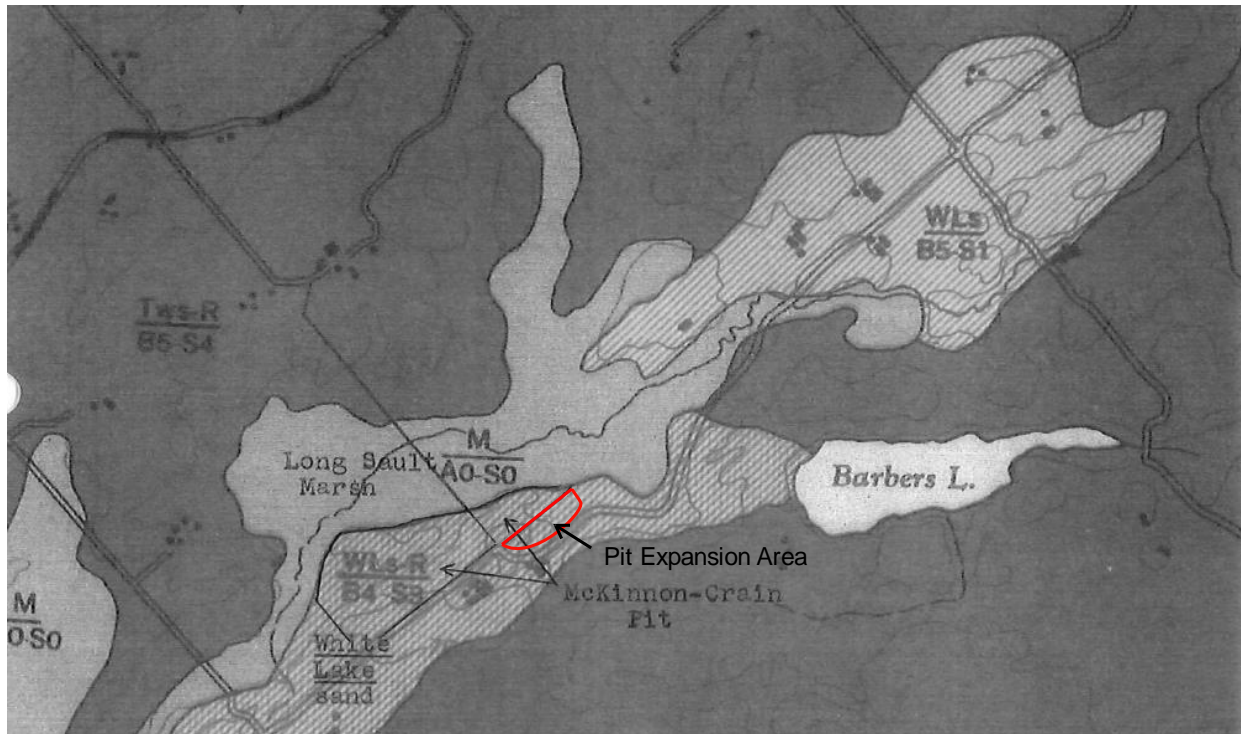
**CLASS 7**

Soils in this class have no capability for arable culture or permanent pasture. This class also includes rockland, other non-soils areas, and bodies of water too small to show on the maps.

**0**

Organic Soils (Not placed in capability classes)

Figure 4.0 (b) Canada Land Inventory Map Soils Map Lanark County 1967



This land is not considered as prime agricultural land and is outside the boundary of the four "provincial plans" (Oak Ridges Moraine Conservation Plan; Greenbelt Plan; A Place to Grow: Growth Plan for the Greater Golden Horseshoe; and the Niagara Escarpment Plan). For these reasons, an Agricultural Impact Assessment report was not required for this site. The final slopes and pit floor above the water table will be returned to a mixed deciduous coniferous forest area with low land species to the north and upland species to the south. These forested areas will provide natural habitat for flora and fauna and will be compatible with the wetland area to the north, adjacent hardwood maple syrup operations, and aggregate extraction areas and scattering of residential strip development. The majority of the pit area will be extracted below water table to form a small lake with some humics or islands which will also compliment the wetland environment.

#### 4.3 The quality and quantity of aggregate on site (section 1.4. of the Summary Statement Standard)

An Ontario Geological Survey, has prepared an **Aggregate Resource Inventory Report 189 for the County of Lanark, Southern Ontario**. This report is a refinement of an earlier **Open File Report 5550, Aggregate Assessment report for the County of Lanark, 1985**. The report indicates a glacial Fluvial Ridge in the southern portion of the Dalhousie Geographic Township. This deposit is significant with 14 million 170 thousand cubic metres of quality coarse aggregates and sand are available. About 79% of these materials are coarse granular "A" 5/8 crushed materials. At the time of the 1985 study, this deposit was considered "isolated", but today is considered to be in reasonable travel distance to the City of Ottawa for its coarse sand needs and is a major contributor to the sand and gravel needs of Lanark County, the town of Perth and the surrounding growth area.

Arnott Brothers use the aggregate from the existing pit to supply crushed stone for road construction and maintenance and quality sand for septic beds, local concrete batch plants, and other primary aggregate uses.

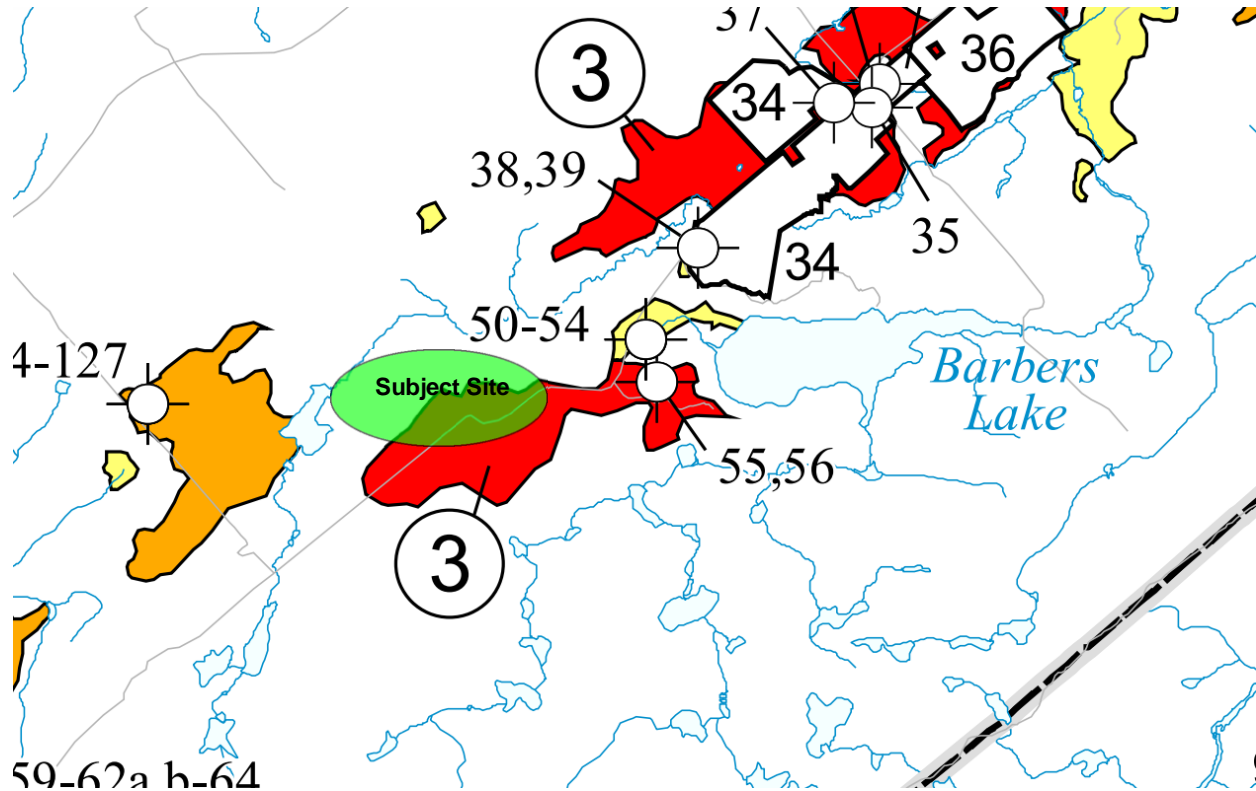
The sand and gravel in this geological feature are considered a specialty aggregate. Quality reserves remain above water table on the existing pit licence and on the expansion area. These quality resources are also available below water table (approximately 187.7 m ASL) for an additional depth of approximately 15 metres to elevation 173 metres ASL along this deposit or to the elevation of the bedrock contact (refer to the site plan cross-sections). The proponent intends to extract the reserves above and below the water table using excavators, dragline, and dredging methods. There would be no need for the taking, diverting or discharge of ground water as part of the extraction below water. Approximately **12.5** Million tonnes of sand and gravel remain on the site above and below water. The maximum annual extraction from the site is restricted to 250,000 tonnes.

The report states that with processing the high quality of sands could meet asphalt and concrete sand quality.





The current Official Plan and zoning by-law for the Township of Lanark Highlands recognises these lands for Mineral Resource Extraction purposes for the existing licenced pit, and flags the expansion lands for their potential extractive use. There are a number of licenced pits located along the extent of the glacial fluvial ridge of sand and gravel (refer to Figure 5). The provincial Pits and Quarries on-line mapping tool also verifies the number of active pit operations in this general location



Figure 5.0 Aggregate Resources Inventory Paper 189 MAP 1 Sand and Gravel Resources for the County of Lanark



### SAND AND GRAVEL RESOURCES

-  Selected Sand and Gravel Resource Area, primary significance; deposit number (see Table 3)
-  Selected sand and gravel resource area, secondary significance
-  Sand and gravel deposit, tertiary significance
-  Other surficial deposits or exposed bedrock

#### 4.4 Haulage routes, truck traffic and entrance permits (Section 1.5. of the Summary Statement Standards)

There is an approved entrance onto Highland Line Road which is currently being used for the existing pit licence No. 609261. Highland Line Road is a half load road which means that weight restrictions restrict axle weights for trucks carrying bulk loads of materials such as sand and gravel. The Township of Lanark Highlands imposes applicable haul load restrictions every spring during the spring thaw period.

The major market from this site will be north-east along Highland Line Road, then east along MacDonald's Corners Road. The major extent of these materials will be used for growth in the Perth settlement areas and rural development in this area of Lanark County. The addition of this licence would allow for a more competitive bid process from licenced sites in the general vicinity of MacDonald's Corners. It is not expected that this application will generate a significant increase in truck traffic from this currently licenced site, but would extend the resource availability from this site and the life of this operation. The proposed annual extraction from the site will not exceed 250,000 tonnes.

#### 4.5 Suitability of Progressive and Final Rehabilitation having regard for adjacent land use (Section 1.6. of the Summary Statement Standard);

It is anticipated that the good quality material will be removed from above water table and below water to elevation 173.0 m ASL (*GRI, 2021*) or to the intersection with the bedrock. Sides of the pit will be sloped to the small lake then an angle of repose will naturally occur below water. A littoral zone will be created along the north boundary setback adjacent the wetland to enhance amphibian, fish and aquatic habitat with a south facing slope. The shallow slope along the north limit of extraction will be enhanced with on-site oversize rock, stumps and grubbing materials to provide structure for aquatic species. The final rehabilitation will move away from marginal farm land (Cask crop and pasture) toward more of a natural environment ecosystem with a small lake and enhance the mixed forest woodland area around the perimeter of the site. The vegetation around the water's edge will be a mixture of natural rejuvenation with plantings of lowland tree and shrub species. Upland areas will be planted to tree species indigenous to the area (e.g., Sugar Maple, White pine, etc.) while evasive non indigenous species will be removed from the rehabilitated areas on an on-going basis. The lake may be enhanced in some areas with extraction leaving shallow humics or islands where below water extraction is terminated prematurely and piles of large stone, stumps and logs added to provide structure for amphibians, fish and other wildlife. The rehabilitation plan will complement the adjacent wetland and mixed forest ecosystem.

#### 4.6 Source Water Protection area and drinking water threats (*section 1.3 of the Summary Statement Standards*);

The ground surface slopes off the ridge along the north side of Highland Line Road north toward the unevaluated wetland. Surface water and spring snow melt runs off the hill and from the Highland Line Road culvert toward the centre of the McKinnon site, south boundary visible in the spring at the pinch point where the thin till and bedrock come together (*"where the bedrock of the Barber Lake intrusion and the till overburden intersect the surface"* quote GRI Level 2 Hydro G Report). The surface water then percolates into the sand and gravel ridge and disperses into the Long Sault Creek to the north.

There is no Source Water Protection area in proximity to the site. The monitoring wells will be measured and tested quarterly during the year, and the data will be summarized in a report by a qualified professional and any significant fluctuations noted and mitigated where necessary. It is not anticipated that there would be any impact on residential water wells existing in the residents south of the pit area which contain a minimum of 150 metre setback closet residence.

#### 4.7 Ground Water

There are seven bedrock water wells mapped within 500 metres of the site and one well in the granular aquifer 1 km to the east. Three bedrock monitoring wells were drilled into the bedrock at the perimeter of the south and north extraction areas.

The operations of the site will include extraction of aggregate from above and below the water table using an excavator, drag line or other dredging equipment. Crushing, screening and washing operations are permitted uses under the current pit licence. Should pumping for discharge of water offsite be required in the future an environmental compliance approval will be obtained for the discharge system. If required, a permit to take water (PTTW) will be obtained for taking ground and/or surface water in excess of 50,000 litres on any day by any means (pumping, gravity, drainage etc.)

The groundwater table occurs at an approximate elevation of 187.7 metres asl. The ground surface of the same and gravel deposit on the site ranges from 190 masl to 217 masl. Three monitoring wells were installed around the proposed extraction boundary and will be used for water level monitoring during the life of the operation.

Recommendations for the wells include;

1. The three monitoring wells will be maintained for the duration of the operation. The wells should be abandoned when the below water excavation comes within 15m of the monitoring well. The well should be replaced within six months if they are removed.
2. Measure water level in the three monitoring wells on a quarterly basis (four times per year).

3. The data will be reviewed annually by a qualified professional (p.geo or p.eng with experience in hydrogeology) to assess whether impacts to the groundwater from the operation have occurred. The review may result in recommendations to amend the groundwater monitoring program.

Once all aggregate material is removed from the pit and as the open water level stabilizes, an average final lake level has been assumed from the average of the measured water levels to be 187.7 mASL. The site plan, as directed by recommendations from the level 2 Hydro Geological Study, contains a detailed water monitoring program and Adaptive Management Plan including triggers to assess potential surface and ground water impacts including potential impacts to adjacent domestic water wells.

## 5.0 SUMMARY OF TECHNICAL REPORTS

The technical reports and information standards for a Class A licence application are contained in *Part 2 of the Aggregate Resources of Ontario*, pursuant to *Ontario Regulation 244/97*. For the "McKinnon Pit" application, the following Technical Reports were prepared:

- Level 1 and Level 2 Hydrogeological Assessment, "McKinnon Pit", August, 2022, prepared by GRI Inc. (authors, George Gorrell and Jennifer Gorrell);
- Natural Environment level 1 and 2 Report, "McKinnon Pit", was prepared by Ecological Services Inc. January 26, 2022 (author, Rob Snetsinger);
- Cultural Heritage Resource, Archeological Assessment Stage 1, and 2 Reports for McKinnon pit were prepared by Past Recovery Archeological Services Inc., dated January 30, 2022. (Stephanie Cleland, M.A. licence P1201);
- Acoustical Assessment Report, was not required as the closest sensitive receptor is more than 150 metres from the south licence boundary of the site and there is an extensive pit face height and berming to mitigate noise impacts between the active pit area and the closest residence.

### 5.1 Hydrogeological Level 1

The highest elevation of ground water and potential for impacts were assessed through completion of a hydrogeological level 1 and level 2 study completed by GRI Inc.

The highest ground water table established after a year's monitoring of the three on-site wells was determined to be 187.7 mASL.

Following preliminary review of the Natural Environment Report (Ecological Services 2022) and a moderate review of the study area during a level 1 Hydrogeological assessment, it was determined that there was potential for impacts to natural and man made features (e.g. water wells, aquifers, and surface water courses and water bodies).

Consequently, a Level 2 Hydrogeological Report, consisting of a field investigation was completed and a detailed analysis of the potential impacts was undertaken.

### 5.1.2 Hydrogeological Level 2

Where a Level 1 investigation has determined the perceived or probable negative impacts on surface or ground water resources, the impacts must be assessed and mitigation measures developed.

The proposal will excavate the economical material above, and up to 20 m below the water table. The site investigation showed the aggregate extends down to an elevation ranging approximately from 193 mASL in the southwest area near TW 1, to lower than 171 mASL at TW 2 and TW 3 over the remainder of the site. It is highly probable that the base of the resource will not be intercepted over the proposed depth. Before water is required for processing, such as crushing or washing, pertinent permits including a Permit to Take Water, would have to be obtained. No change to the water table is planned through either pumping or ditching. The planned operation method will excavate below the water table using a cutter dredge. In general, an operation where the water table is not pumped or lowered by some other means usually does not result in significant hydraulic impacts (Green, Merritt and Leete 2005). The proposed excavation will be a maximum of 20 m below the water table in the granular aquifer, or to approximately 173 mASL. The water level in the open water in the pit will be +/- 187.7 mASL (the average of the water table measurements over the study period in the granular aquifer). Overall, the hydraulic impact of the proposed operation on the groundwater and surface water is predicted to be minimal. This is primarily because the operation will not change the groundwater level in the granular aquifer. The operation will not change the current flow or contribution of the perched highland aquifer or divert runoff from the area. The runoff from Highland Line already flows through the pit, presumably by the municipality with the property owner's permission. This will not be changed with the proposed operation.

There are seven bedrock water wells mapped within 500 metres of the site and one well in the granular aquifer 1 km to the east. Three bedrock monitoring wells were drilled into the bedrock at the perimeter of the south and north extraction areas. The on-site wells will be monitored quarterly in accordance with the recommended conditions.



## **Consolidated Hydrogeological Recommendations for the Site Plan**

No impacts are anticipated from the operation as proposed. However, it is recommended that groundwater monitoring program be implemented for several years to support the impact assessment and provide data to protect both Arnott and surrounding groundwater and surface water interests. Piezometers TW-01, TW-02 and TW-03 were positioned as sentry wells between the proposed operation and neighbouring groundwater users. They will be used to confirm the data analyses, provide continued groundwater assessment and monitor groundwater quality. If the owner is willing to participate, the well at 1121 Highland Line could be included in the groundwater monitoring program.

### **12.1 Groundwater and Surface Water Level Monitoring**

Water levels should be recorded before operations begin each year, and on alternate months through the operating season up to one month after the season ends. If the well at 1121 Highland Line is to be monitored, a data logger could be installed to minimize intrusion into the well. The data should be downloaded when the first water level is measured at the pit in the spring, and every three months through until the final reading for the season. After two years, if a representative baseline has been established, recommendations can be made for changes to the monitoring program, including the necessity to continue it, until below water excavation begins. When below water excavation begins, the groundwater monitoring program described above should be repeated as a minimum (i.e. assuming no changes have resulted from the original program). A staff gauge should be installed in the pond, and monthly water level measurements should be recorded on the same day as the groundwater levels. As the lake expands, it may be beneficial to install a second staff gauge to record the change in water level across the open surface. For the long-term data loggers could be installed to monitor the water levels in the ponds. When measurements are taken, observations and/or photos of the site activity should be recorded. Weather conditions on, and for two or three days before the monitoring, should also be noted. When the monitoring of the below water excavation begins, the data should be checked by a qualified professional as the measurements are taken. An annual review of the data should be prepared annually by a QP. During the annual review, recommendations may be made for changes to the monitoring program. The reviews should be kept at the company office for future reference.

#### **12.1.1 Off-Site Groundwater Users**

Site specific information on the wells at 1025, 1101 and 1121 Highland Line should be documented through a well interview before excavation into the expansion begins. The survey should document the property setting, well location and construction, and confirm the water well record match if possible. A water sample should be taken to establish baseline water quality. As with the baseline groundwater monitoring, the pre-operations sample provides a reference for future use. The recommended list for baseline and any future water quality analysis is found in Table 6.

## 12.2 Adaptive Management Plan

An Adaptive Management Plan incorporates the information from the monitoring plan to reduce uncertainty about the impact that the pit will have on natural systems on the site and surrounding area.

**Table 6: Recommended Baseline Water Quality Analysis, Residences**

Group	Parameters
Field Measurement	Total Dissolved Solids, pH, conductivity, dissolved oxygen, turbidity, water temperature, residual chlorine
Bacteriological	Total coliforms, faecal, coliforms, e-coli, background plate count
General Characteristics	Total Suspended Solids, Alkalinity as CaCO <sub>3</sub> , TDS, pH, Conductivity, Hardness as CaCO <sub>3</sub> , Ca, Mg, Na, K, Cl, Total P, N-NO <sub>2</sub> , N-NO <sub>3</sub> , SO <sub>4</sub> , Total Kjeldahl Nitrogen, N-NH <sub>3</sub> , phenols,
Metals	B, Ba, Be, Cd, Cu, Cr, Fe, Mn, Mo, Ni, Pb, Si, Ag, Sr, Tl, V, Zn
Hydrocarbons	Total Petroleum Hydrocarbons (F1 - F4)

### 12.2.1 Trigger Mechanism

Water levels in the site wells will be measured seasonally. The monitoring will be done for two years. At the end of two years the data will be analyzed and recommendations will be made on the need for changes to the monitoring program.

#### 12.2.1.1 Changes in Site Groundwater Level

The data to date found the annual fluctuation in groundwater level ranged from 0.25 m at TW 2 to 0.69 m at TW 1. The groundwater elevation on July 12, 2021 and July 28, 2022 was comparable. For the initial two years of monitoring, if a groundwater level has declined by more than 30% from the previous year at any monitoring period, the cause will be assessed and addressed. The analysis at the end of the initial two years of monitoring will include a recommendation for changes to the trigger mechanism if required.

#### 12.2.1.2 Receipt of Unexpected Well Problem

If an unexpected complaint arises, the license holder will retain a Qualified Professional, who will investigate. If the problem is attributed to the pit operation, remediation or compensation will be offered by the operator as soon as possible. This response will apply within 500 m of the license boundary.

a. A Qualified Person will be retained at the license holder's expense to investigate the issue, and within 15 days provide an opinion on cause and provide recommendations to remediate the issue.

b. In addition, if the issue occurs within 500 m of the license boundary, the operator will provide an interim potable water supply to the affected well, within 24 hours. The interim supply will be continued until the matter is considered resolved by the MOECC or the resident.

If the issue occurs more than 500 km of the license boundary, the MOECC will be notified of the issue. Any direction by the MOECC will be followed by the license holder.

### **12.2.1.3 Predicted Negative Impact on Neighbouring Wells**

The objective is to prevent the predicted impact from occurring. This is because of the low yields and mineralized water that is often associated with Precambrian aquifers. If a negative impact on a neighbouring well is predicted through hydrogeological data review, the specific well conditions will be evaluated, and the predicted impact will be remediated. The remediation may consist of lowering or replacing the pumping equipment or deepening the well(s) by the operator or their representative (with owners' permission).

### **12.2.1.4 Replacement Well Quality**

To mitigate the potential issue of naturally poor water quality in remediated wells, the effort will be made to construct the well to a final depth as shallow as possible to obtain a suitable water quantity. If natural water quality exceeding the Ontario Drinking Water Standard is encountered, suitable water treatment will be recommended.

**12.2.2 Protection of Groundwater and Surface Water Quality** Protection to the groundwater and surface water from contaminants will be accomplished through management and operation of the materials and equipment to the industry standards and legislative requirements. Re-fueling will take place on an impervious surface, and materials storage will be in an appropriate container, with secondary containment. Regulatory requirements of the Technical Standards and Safety Authority will be followed. A minimum of 30 m will be maintained between a contaminant source, and any surface water source including but not limited to, the pit pond, or any ditch system. Material imported to the site should meet the regulatory requirements of O. Reg. 347.

### **12.2.2.1 Emergency Spills Procedure**

An emergency spills procedure will be prepared for the site. The site manager should be trained in the emergency spills procedure and pertinent telephone numbers should be kept at the site office. A quantity of appropriate clean-up material such as absorbent mats and granular absorbent material should be kept on site when the quarry is operating.

It is recommended that the emergency plan also include the following components:

- Any unexplained losses of fuel or other contaminants will immediately be reported to appropriate management levels and/or agencies.

- If a spill occurs, action will immediately be taken to contain and absorb the spilled material. The reporting requirements of the Ministry of Environment and Climate Change will be followed under the responsibilities of the designated staff, who will be responsible for assuring that proper clean-up has occurred.

### **12.2.3 Additional Recommendations**

Operational permits, such as a Permit to Take Water or a Certificate of Approval for Industrial Wastewater Treatment (part of the Environmental Compliance Approval) should be obtained, if necessary.

## **SUMMARY AND CONCLUSIONS, LEVEL 2 HYDROGEOLOGICAL REPORT**

Arnott Bros. Construction Ltd. is applying for a licence expansion to enlarge the extraction area of their current pit and additionally requesting a site plan amendment that will permit the excavation to extend below the water table for their current pit located in Township of Lanark Highlands (Geo. Twp. of Dalhousie), County of Lanark. The site is approximately 40.1 ha on Part of Lots 5 and 6, Concession 10, Part of Lot 6 Concession 11, Part of the Road Allowance between Lots 5 and 6, Concession 10 and Part of the Road Allowance between Concessions 10 & 11 (at Lot 6). The property is on part of a glaciofluvial assemblage that extends from near Middleton, southward to Pine Grove westward to just north of Playfairville, parallel to Highland Line and Kingston Line and crosses County Road 36 before continuing into the County of Frontenac. Published reports indicate that the material in the assemblage is the highest quality with respect to the province's mineral aggregate interests. The proposal will extract aggregate from above and below the water table using an excavator, drag line or other dredging equipment. No diversion, storage or drainage of groundwater is planned in the proposed operation. Three test wells were drilled on the site on November 26 and 27, 2020 and a piezometer was installed in each. The holes were drilled to bedrock refusal or a maximum 18 m below the water table. Rising head and falling head tests were conducted to measure the hydraulic conductivity. Groundwater levels were measured between December 3, 2020 and July 28, 2022. Water samples were taken on December 3, 2020 and January 11, 2021. Four aquifers were identified on the site; a perched unconfined aquifer ("highland aquifer"), an unconfined aquifer in the glaciofluvial deposit ("granular aquifer") and confined aquifers in two bedrock formations. The highland aquifer drains into the granular aquifer. This condition existed pre-excavation and will continue through and after the site has been excavated. The aquifer flows northward from the bedrock high south of the site, and is found in the south-west part of the property. The granular aquifer has a groundwater elevation that is 10.9 to 11.6 m lower than the highland aquifer. One spring was found along the existing south property boundary, and two possible springs were identified from aerial photography. The thick and tangled undergrowth prevented a closer examination of the north face. If more springs are found, they will be located where the highland aquifer discharges to the granular aquifer, and where the water table in the granular aquifer intersects the north slope of the deposit along the north property boundary. A 129-ha wetland is near the property along the west, north and east boundaries. The natural environment report concluded that the proposed operation would not affect the wetland unless the final lake diverted flow from the wetland. This study found that this will not occur.

The bedrock aquifer was examined through a water well record analysis. There were seven well records found within 500 m of the site, all finished in bedrock. The wells are upgradient of the site and the information indicates there will be no impacts from the operation. A monitoring and mitigation plan has been recommended to provide additional baseline data during the above water excavation, with a second monitoring period once the below water operation begins. It is also recommended that baseline



Arnott Bros. "McKinnon Pit  
Highland Line Road,

information and water quality be collected on the neighbouring wells. In summary, hydrogeological investigation found the proposed expansion and below water excavation will not result in a significant impact to the surrounding hydrogeological environment.

## 5.2 Natural Environment Level 1

The list of key species and habitat verified under the Provincial Aggregate Resources Act, Arnott Brothers Construction Ltd. is applying for an expansion to their pit licence and an amendment to extract below water for their current licence on property located at 958 Highland Line Road, Part Lots 5 and 6 in Conc.10 and Conc. 11, Geographic Township Dalhousie, Municipality of Lanark Highlands, County of Lanark. The expansion **application for a Class "A" pit licence to excavate more than 20,000 tonnes annually** pursuant to the Provincial Standards, Parts 1, 2 and 4 adopted by **Ontario Regulation 244/97 under the Aggregate Resources Act**. This class of application requires consideration and identification of any Significant Natural Heritage Features on or within 120 metres of the site being considered, and if present, a further assessment (Level 2 Report) to consider potential impacts and mitigation measures to minimise impacts to these features including species and their habitat. The land is currently zoned Mineral Aggregate Pit (for existing pit licence) and Mineral Aggregate Resource – holding and RU for the 5.8 ha. Additional expansion area.

A Natural Environment level 1 and level 2 report was evaluated and prepared by Rob Snetsinger of Ecological Services Inc. This report was based on current protocols and a screening list for threatened and endangered species under the Endangered Species Act, for review by staff biologists at the Ministry Environment, Conservation and Parks. The report further considers any Significant Natural Heritage Features on or within 120 metres of the site protected under the Planning Act supported by policies and guidelines directed by the Ministry of Northern Development, Mines, Natural Resources and Forestry. The list of these features includes the following:

- *significant wetlands (including significant coastal wetlands);*
- significant habitat of endangered and threatened species;
- significant Areas of Natural and Scientific Interest (ANSIs);
- *significant woodlands (south and east of the Canadian Shield)*
- *significant valleylands (south and east of the Canadian Shield)*
- significant wildlife habitat; and
- fish habitat.

This Natural Environment Report follows the guidelines provided in the **Aggregate Resources Program Policy and Procedures manual** and **Part 2: Aggregate Resources of Ontario: Technical reports and information standards, August 2020**, section 2.2 Natural Environment Report. Section 2.2 investigates whether or not significant natural heritage features are on or within 120 meters of a proposed project boundary and describes the methodology, data, mitigation and contingency measures that will be implemented should unforeseen impacts occur. The August 2020 Provincial Standards for a Natural Environment Report can also be submitted to meet the Environmental Impact Statement requirements for the rezoning application and conformity with the Township of Lanark Highlands Official Plan (OP).

Within the proposed pit expansion boundary, there is a species at risk, significant woodland feature and significant wildlife habitat. Within 120 m of the expansion boundary there is a significant woodland feature, significant wildlife habitat, fish habitat, wetland, and the habitat of species at risk. The risk to these significant features is low to moderate and mitigation recommendations are provided accordingly.

The wetland that establishes the north licence and setback limit is unevaluated but for the purpose of this project, was treated as though it was a significant wetland. Fish habitat exists in the unevaluated wetland and the pools within the wetland.

### 5.2.1 Natural Environment Level 2

#### **Key mitigation measures**

#### **Species At Risk (SAR) (Threatened and Endangered)**

As many as 30+ Bank Swallows were observed nesting in one of the active pit faces. It is not surprising that Bank Swallows were seen as these birds are attracted to the sheer sand faces of sand pits for nest building purposes, and Heneberg (2001) notes that Bank Swallows preferentially move to sand pits over traditional nesting areas due to the good nesting qualities of the sand substrate. It is expected that the active pit will continue to provide habitat for bank swallows.

The main disturbance of the pit face occurs during crushing and screening operations which have occurred in the past in spring and banks avoided during nesting season. As long as extraction operations are a minimum 30 metres from active nests there is little or no impact on the species.

A preliminary list of potential endangered species for this area was provided by MECP, Species at Risk management biologist. These species were adequately screened using provincial protocols and methodologies and described in detail in the Natural Environment Report.

Although no other SAR birds or bat species were observed on site, the vegetated setbacks around the pit boundary will act as an undisturbed buffer zone to protect trees as roosting areas for foraging bats, birds and reptiles. As a general precaution for avoiding harm to SAR bats, no trees shall be removed during the maternity/roost season (April 15 to Sept. 15). Although birds and bats are tolerant to human activities, the summer hours of operation indicated on the site plan (6:00 a.m. to 6:00 p.m. week-days) commence after and cease before foraging time for bats and most bird species.

#### **Wetlands**

As indicated in the NER, the wetlands adjacent are not evaluated. A setback between the pit and the wetland follows the regulation line established by Mississippi

Conservation (MVCA) and also includes an enhanced 15 metre additional setback to the forest edge along the north west boundary for added protection.

### **Significant Woodlands**

There is a significant forest cover in the County of Lanark, including the municipality of Lanark Highlands. There is no significant woodland identified on or within 120 metres of the project site. As stated earlier, the buffer areas around the pit boundary will be undisturbed to encourage SAR recovery plans and future wildlife habitat.

### **Fish Habitat**

Fish sampling with sein net carried out by Muncaster Environmental in 2006 confirmed fish species existed in the pond 600 metres to the west of the subject site at the corner of Highland Line road and the 12<sup>th</sup> concession. It is believed that fish follow the meandering tributary from the pond for 2.5 km creek before connecting to Long Sault Creek about a kilometer east of the 9th Concession Line. Portions of the tributary was dry during summer observations. The buffer areas between the pit and wetland and the open pond areas are suffice to protect fish habitat provided there is no taking of surface or ground water during the extraction operation (no pumping, ditching or diverting of water from the site) as recommended in the GRI hydrogeological Assessment 2022 and as indicated by the site plan.

Some depleted areas of the existing operation adjacent to the north east extraction limit have depleted of sand and gravel and rehabilitated by gently grading the slopes toward the wetland and are adequately vegetated.

### **Significant Wildlife Habitat**

Thresholds for the following four different wildlife habitats in this particular Site Region 5E are described in the NER:

- Seasonal concentration areas
- Rare vegetation communities or specialized habitats for wildlife
- Habitats of species of conservation concern, excluding the habitats of endangered and threatened species.
- Animal movement corridors.

Based on government protocols and field analysis done by the members of the Ecological Services team, no significant wildlife habitat was identified on the site or within 120 metres of the site.

### **ANSI**

There are no identified ANSI's within 120 m of the pit expansion areas. For this reason, no additional analysis is required.

## **Summary of Mitigation Recommendations:**

### **Species at Risk (SAR)**

As a general precaution for avoiding harm to SAR bats, it is recommended that no trees be removed during the maternity/roost season (April 15 to Sept. 15).

To help reduce sight and sound impacts to Eastern Meadowlarks using the fields south of Highland Line Road, it is recommended that extraction proceed from the north to the south towards Highland Line Road, such that extraction machinery will be mostly out of sight behind the height of the aggregate face, and the required roadside berm.

A seasonal Category 2 extraction restriction boundary from April 15 to July 31 (after Weir 2008) is recommended at the southwest end of the existing licence area to provide an extra layer of disturbance minimization for Eastern Whip-poor-will. Whip-poor-will surveys will need to be conducted if pit operators are interested in bypassing this timing boundary during any particular year. However, it could be as many as 20 years before pit activity gets within this Category 2 area and if it is determined that Whip-poor-wills are not present at that time, or are no longer considered a SAR, we see no need for a seasonal restriction boundary during that particular year.

The pit operators will be required to register their pit activity with the MECP due to the Bank Swallow nesting taking place on site. A 30-metre extraction limit from active Bank Swallow nests is required from

### **Wetland**

On top of the required 30 m MVCA wetland buffer, it is recommended that a further 15 m buffer be added at the northwest corner of the existing licence boundary, for a total 45 m (see pg. 18 image).

It is recommended that the open water created as part of the closure plan have sloping edges to enhance the creation of littoral zone habitat, and that several small islands be created that could support habitat to species such as waterfowl and turtles.

### **Woodland**

It is recommended that all wooded portions bordering the wetland to the north and west of the existing pit licence area be maintained as woodland.

### **Wildlife Habitat**

To protect painted turtle nesting that occurs beside the current extraction area it is recommended that turtle fencing (see MNR 2013) be installed at the edge of the unvegetated area (see page 23). The dividing line between unvegetated and vegetated areas is distinct in Google maps. It is also recommended that there be no excavation north of the turtle fencing.



### **Note of Caution**

If the proposed below water table expansion were to significantly alter the hydrological regime of the adjacent wetland, this could result in significant impacts to the wetland, to fish habitat, and to significant wildlife habitat. It is our understanding that the hydrological regime will not be impacted, but we defer to the report by Gorrell (2022) in this regard. There is potential for a net ecological benefit from the creation of an aquatic feature here as part of the closure plans resulting in more wetland habitat, more significant wildlife habitat, more fish habitat, and possibly new SAR habitat.

### 5.3 Cultural Heritage Resource Report - Stage 1

There was a previous Cultural Heritage Assessment prepared pursuant to the provincial cultural heritage standards for a pit application for the current pit licence (McKinnon Pit" Lic. #609261, area of 34.3 hectares. For reference purposes, the original Stage 1 Archeological assessment was prepared by Adams Heritage on July 25, 2006 and a Stage 2 assessment completed by Kinickinick Heritage Consultants dated November 2006. An additional 5.8 hectares represents the expansion area of the present application and is the focus of the current stage 1 and stage 2 archeological assessment prepared by Past Recoveries Archeological Services Inc. completed on January 31, 2022.

#### 5.3.1 Cultural Heritage Resource Report - Stage 2

The purpose of the Stage 2 investigation was to determine whether or not there were archaeological resources on the subject property, and if so to recommend an appropriate Stage 3 assessment strategy. In particular, a pre-Contact archaeological site (BfGd-3) had been registered on the adjacent Lot 6, Concession 10, less than 10 m from the study area. The Stage 2 property survey was completed over the course of two days on the 28th and 29th of June, 2021 by means of both a shovel test pit survey and pedestrian survey at 5 m intervals across all portions of the property determined to exhibit archaeological potential (see Map 5). This included field walking intensification at 1 m intervals within 20 m of site BfGd-3. No archaeological resources were found during the course of the survey.

The Past Recovery Stage 2 Archeological Assessment for "McKinnon Pit" dated January 30, 2022 forms the basis for the following recommendation:

1) It has been determined that the cultural heritage value, or interest, of the study area has been sufficiently documented through the Stage 2 research conducted to date, and no further archaeological assessment is required for the subject area as presently defined on Map 2 of the Past Recovery Report.

The following recommendation has been included as per a request from the Algonquins of Ontario:

2) Since the potential always exists to miss important information in archaeological surveys, if any artifacts of Indigenous interest or human remains are encountered during the development of the subject property, please contact: Algonquins of Ontario Consultation Office, 31 Riverside Drive, Suite 101, Pembroke, ON, K8A 8R6; Tel: 613-735-3759; Fax: 613-735-6307; Email: [algonquins@tanakiwin.com](mailto:algonquins@tanakiwin.com).

In order to ensure compliance with provincial legislation, the reader is advised of the following:

1) This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological

fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

2) It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

3) Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

4) The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

5) Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.

#### 5.4 Acoustical (Noise) Report

The acoustical standards under the *Aggregate Resources Act, Ontario Regulation 244/97*, are identified in *Part 2 of the Aggregate Resources of Ontario*, Technical Reports and Information Standards, section 2.6 Noise Assessment Report. The standard stipulates that for a Class "A", Pit Below Water, where extraction or processing is intended to occur within 150 metres of a sensitive receptor, a noise study is required. As indicated by the Operational drawing, a 150 metre setback distance has been established between the extraction limit and the closest residents, south of Highland Line road. This is considered an adequate setback distance based on the following considerations:

- topography of the land and distance between the pit and the closest receptors. The pit face height and pit floor below grade protects the adjacent receptor elevation from noise impacts at the distances indicated by the setback; and

- the existence of a mature mixed forest within the buffer zone acting as a noise barrier which will be left undisturbed;

No noise study is required to further analyse acoustical impacts from this site.

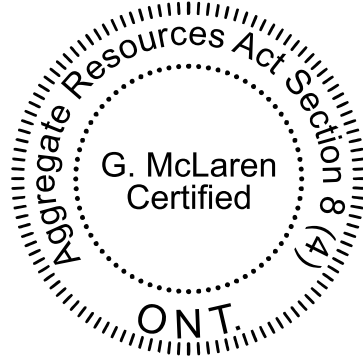
## 6.0 CONCLUSIONS

The material is considered to be a Primary Aggregate in the OGS, Aggregate Assessment for Lanark County, and confirmed by the hydro G assessment and will be used for construction projects in the vicinity of the subject property. The lands will be returned to a modified natural state. The extraction of aggregate material is consistent with the Provincial Policy Statement, 2020 and complies with the local Official Plan for the Township of Lanark Highlands. The subject property is partially zoned and licenced for extractive uses and the surface expansion area is presently in a Mineral Resource extraction holding and Rural zone.

We would therefore conclude that based on technical report evaluation and mitigation measures, there are no significant provincial constraints on or immediately adjacent to the site (within 120metres). Adjacent cumulative impacts of this operation are minimal and the site is in compliance with the intended local planning decisions. The utilization of this site is considered to be wise management of a natural resource, is designated for such a land use and supports issuance of a licence for a Class A pit below water.

## 7.0 REPORT DATED AND SUBMITTED

This Summary Statement was prepared for submission to the Ministry of Natural Resources and Forestry by:



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Gary McLaren  
President  
Phone: [613-272-6795](tel:613-272-6795)  
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## 8.0 QUALIFICATIONS AND EXPERIENCE OF AUTHOR OF THE SUMMARY REPORT

***Summary of Relevant Skill Sets and Experience, to prepare Summary Statements for licence applications under the Aggregate Resources Act, develop solutions to perceived social and environmental impacts from pit and quarry operations, and facilitate consultation with stakeholders and agencies regarding proposed licence applications and amendments under the ARA.***

Over 34 years with the Ministry of Natural Resources and Forestry as a designated badge carrying Inspector under the Aggregate Resources Act and the Pits and Quarries Control Act, my prime responsibility was the inspection and audit of licenced pits and quarries for compliance with regulations, standards and policy and procedures under the Act. The regulatory oversight involved an excellent knowledge of legislation and ability to assess compliance and select the proper enforcement tool to educate and provide a deterrent to the operator. I have developed a good ability to articulate infractions and recommended remedial action to correct non-compliance within a written inspection report format served on the operator, licensee or permittee. I also developed the ability to issue Compliance Orders, Rehabilitation Orders, witness statements and a host of forms and reports to support Provincial Offences court charges and prosecutions (crown briefs, subpoenas, information's, etc.) and documents to support opinion and expert witness statements at the Ontario Municipal Board and Environmental Review Tribunal.

As a regional aggregates program coordinator and senior policy adviser, my main responsibility was providing advice to field inspectors and staff during the review of compliance documents, licence and permit applications and other approval processes under the Act and advise senior managers regarding decisions on these matters. This work involved good investigative skills in understanding files, policy, procedures and directives and ability to prepare briefing notes and explanatory notes to synthesize and simplify complex issues.

As a MNRF regulator, my training included a host of compliance and enforcement courses involving collection of evidence, notes and report writing, oral communications skills, photographs, conflict resolution and tact. Acting in a multitude of different positions with MNRF over the years (district planner, tree nursery superintendent, project planner, fisheries and forestry technician, supervisor, etc.) has also exposed me to a good understanding of the biological, ecological, and hydrogeological functions of the environment and how they interact. This knowledge was further enhanced with training in Temperate Wetlands Restoration, experience in directing pit and quarry rehabilitation and through the review of mandatory technical reports for aggregate licence applications (Natural Environment Reports, Hydrogeological Reports, Acoustical

Studies, Archeological Reports, traffic studies, and planning and land use summary statements). I have successfully adopted technical report recommendations into enforceable licence and site plan conditions acceptable to the operator and regulator.

Since formation of Milestone Aggregate Resource Consulting Service Inc. in 2015, I have been approved to prepare site plans pursuant to section 8(4) of the Ontario Aggregate Resources Act. As project coordinator for licence applications under that Act, I have prepared site plans and Summary Reports, evaluated RFP's, and facilitated notification and consultation processes. I have been asked to create and present comprehensive compliance strategies for pit and quarry operations. I have prepared and submitted mandatory annual Compliance Assessment Reports for several licensees located in south eastern Ontario. I have educated operators on the risk based approach for compliance being implemented across provincial government ministries. I have informed aggregate operators on the growing knowledge, engagement and expectation of local stakeholders and the benefits of operating their sites above the minimum requirements stipulated in legislation. I believe I am considered an authority in aggregate resource management, regulation, policy, planning and approvals.

Prepared by:



Gary McLaren,  
President Milestone Aggregate Consulting Services Inc.

## 9.0 REFERENCES

*Township of Lanark Highlands Official Plan Dec. 2012*

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*V.L. Lee, 2013 - Aggregate Resources Inventory of the County of Lanark, Southern Ontario Ontario Geological Survey Aggregate Resources Inventory Paper 189.*

*Level 1 and 2 Hydrogeological Assessment, "McKinnon Pit", Geo. Twp. of Dalhousie, Lanark Highlands, Highland Line Road, prepared by: GRI Inc., August 2022*

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*Site Plan for the "McKinnon Pit", Highland Line Road, prepared by McIntosh Perry Engineering Services Inc., November 3, 2022.*

*Ministry of Municipal Affairs, 2020 – Provincial Policy Statement*

*Ministry of Natural Resources and Forestry, 2006 - Aggregate Resources Program Policies and Procedures*

*Aggregate Resources of Ontario Standards adopted by Ontario Regulation 244/97 under the Aggregate Resources Act.*

## 10.0 ACRONYMS

ANSI – Area of Natural and Scientific Interest

ARA – Aggregate Resources Act

ARPPM - Aggregate Resources Program Policy and Procedure (MNRF)

MECP – Ministry of Environment, Conservation and Parks

MNRF - Ministry of Natural Resources and Forestry

OGS – Ontario Geological Survey

OP – Official Plan (Township of Lanark Highlands)

PPS – Provincial Policy Statement 2014

PSW – Provincial Significant Wetland

Regs. – Ontario Regulation 244/97 under the Aggregate resources Act

ZB –Zoning By-Law (Township of Lanark Highlands)

## 11.0 APPENDICES

### APPENDIX A – Licence Application

[Licence Application Form](#)

### APPENDIX B - Site Plans

[Operations Plan](#)

[Cross-Section](#)

[Existing Features](#)

[Rehab Plan](#)

[Mitigation and Monitoring Recommendations](#)

### APPENDIX C - HydroG Report Level 1 & 2

[HydroG Report Level 1 & 2](#)

### APPENDIX D - Natural Environment Report Level 1 & 2

[Natural Environment](#)

### APPENDIX E - Cultural Heritage Report Stage 1 & 2

[Cultural Heritage Report](#)

[MCM Clearance Letter](#)

[Criteria for Evaluating Archeological Potential](#)

[Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes](#)