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AGGREGATE RESOURCES ACT AND PLANNING REPORT

L&D Harrison Pit

2499 Washburn Road,
Part of Lots 8 and 9, Concession 6 (Storrington)
Township of South Frontenac
County of Frontenac

January 2020

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1.0
EXECUTIVE SUMMARY

Brian Harrison is applying for a Class 'A' Licence under the Aggregate Resources Act (ARA) and Zoning By-law Amendment under the Planning Act to permit sand and gravel extraction through operation of a pit on Washburn Road in the Township of South Frontenac. The proposed pit site is 25 hectares (62 acres) in size and is located in a rural area at the southeast corner of the Township, north of the Cataraqui River and the Township's boundary with the City of Kingston (see **Figure 1**, Site Location).

Other related approvals such as a Commercial Entrance Permit from the Township and Provincial approvals related to processing operations will also be required and will be applied for subsequent to achieving ARA licensing and Township Zoning.

The proposed L&D Harrison Pit will be operated above the water table. It is estimated that between 3.5 and 4 million tonnes of primarily sand aggregate resource may be extractable, depending on how much on-site material must be dedicated to rehabilitation of the pit. Further, the actual amount will be reduced as not all the extraction envelope contains aggregate quality material. Harrison is applying with an annual production limit of 400,000 tonnes for the proposed pit. Haulage will occur via Washburn Road and other Township roads, with the primary market area being the Kingston area.

The subject lands are currently used for agriculture. A tenant-occupied house and farm buildings are located in the portion of the Harrison property between Washburn Road and the proposed pit area. Forest and wetland features exist south of the subject lands, between the proposed pit and the Cataraqui River. The uses and features on the Harrison property either side of the subject lands will remain in place throughout the operation of the pit. Other residential properties are located between the subject lands and Washburn Road to the north. The property to the east is in use for agriculture and an ARA licensed sand pit, and agricultural uses occur on the property to the west. On the subject lands, agricultural uses will continue while pit operations are ongoing elsewhere. The pit will be rehabilitated back to agricultural use on the pit floor, where suitable conditions exist, with trees planted in clusters at the perimeter of the excavation on the sloped former pit faces.

The County Official Plan designates the subject lands as 'Resource Lands (Mineral Aggregate)', through mapping of the deposit as 'Sand and Gravel Resource Area'. Schedule 'A' of the Township Official Plan (OP) designates the majority of the subject lands as 'Mineral Aggregate', which permits a pit use, with the remainder designated 'Rural', which does not permit a pit use. The subject lands are classified as 'Rural' in the Township's Zoning By-law, which does not permit a pit use. Township OP policy provides for ARA applications and Zoning Amendments for extractive use on areas larger than what is OP designated for extraction without need for OP amendment under certain

conditions. Accordingly, and subsequent to pre-submission consultation with Township Planning Staff, no Official Plan Amendment (OPA) is required as part of the ARA and Zoning Amendment processes to permit the pit use on the subject lands.

The proposed L&D Harrison Pit represents the wise use and management of an identified aggregate resource, which is consistent with Provincial, County and Township planning policy, based on the following:

- The subject lands contain significant aggregate (sand and gravel) resources as mapped in Provincial aggregate publications, located close to market and in an area where aggregate operations currently exist and have existed for over 40 years.

- The Provincial Policy Statement, County Official Plan and Township Official Plan recognize that the availability and protection of aggregate resources for future use is important for both local and regional needs. The Official Plans recognize that the subject lands contain significant aggregate resources, through their respective mapping and land use designations.

- Notwithstanding there is no Provincial, County or Township planning policy requirement to rehabilitate the depleted pit back to an agricultural condition, the proposed pit floor will be returned to a condition suitable for agricultural use, where such conditions permit.

- A Level 1 and 2 Natural Environment Report determined there not to be any on-site features of natural heritage significance as identified in applicable planning policy. Within 120 m of the site, significant wetlands, significant wildlife habitat, fish habitat, endangered and threatened species, and significant woodlands was determined to exist. The Report concluded that the proposed development will have no negative impacts, as per applicable planning policy, on the form or function of the identified natural heritage features provided recommended mitigative measures are implemented.

- A Hydrogeological Evaluation identified a maximum (i.e. deepest) pit floor elevation that is 2.0 m above the highest water table over the majority of the site. It concluded that no adverse impacts to the groundwater or surface water resources are anticipated as a result of the proposed above water table pit.

- A Stage 1&2 Archaeological Assessment found the site to contain no significant archaeological resource, with no further work required. Confirmation has been received from the Ministry of Heritage, Sport, Tourism, Culture Industries that the report has been entered into the Ontario Public Register of Archaeological Reports.

- The operational design of the proposed L&D Harrison Pit, during site preparation, extraction and rehabilitation, incorporates:

    i) recognized control and mitigation features to facilitate adherence to applicable Provincial regulations, standards and guidelines, with the objective of ensuring the pit can operate in a manner that minimizes social and environmental impacts; and,
    ii) recommendations of the technical reports prepared in support of the ARA and Planning Act applications.

2.0 PROPOSAL

2.1 Applicant

Brian Harrison is founder and sole owner of Dig'N Dirt Ltd., located on Road 38 in Kingston. Formed in early 2003, Dig'N Dirt specializes in road construction, residential/commercial building excavation, site servicing; and, municipal water, sewer and utility projects.

The use of high quality aggregate resources is a necessary aspect of Dig'N Dirt's business activities. After years of obtaining such resources from other pits and aggregate companies in the area, Harrison is applying for the L&D Harrison Pit in order to secure an assured supply of sand, both in quantity and quality, to ensure this much needed resource is available to serve Dig'N Dirt's aggregate needs and strengthen its business activities. Opening the pit will also allow those business activities to expand, through being a commercial supplier of specialized aggregates such as 'hydro sand', 'brick sand', and 'tile/septic sand'. The pit will also be a source of 'winter sand', critically necessary for ice-control on roadways.

Also of importance, approval of the pit will facilitate succession planning for Dig'N Dirt, as control and running of the company passes from Brian Harrison to the next generation(s) in the family. It is for that reason that the proposed pit is named L&D Harrison Pit, for Harrison's grand-children.

2.2 Subject Lands

The subject lands are comprised of a 25.2 ha (62.3 acre) portion of Harrison's 61.5 ha (152 acre) property located at 2499 Washburn Road, between Factory Road and Ida Hill Road, and to the north of the Cataraqui River (see **Figure 2**, Subject Lands). The lands are legally described as Part of Lots 8 and 9, Concession 6, former township of Storrington, now in the Township of South Frontenac, County of Frontenac.

The Harrison property is located with 260 m of frontage on Washburn Road. The property features, from north to south, vacant naturalized lands including an un-named watercourse, a former barn, a 'cover-all' agricultural storage building, a tenant-occupied dwelling and driveway, agricultural fields (soybean in 2019), and forested and wetland areas (part of the River Styx Provincially Significant Wetland (PSW)) located immediately north of the Cataraqui River (known locally as the River Styx), which is part of the Rideau Canal system.

The subject lands, on which the L&D Harrison Pit is proposed, occur exclusively on the agricultural portion of the Harrison property, with no watercourse features or forested areas with the exception

of a tree line at the south half of the central axis of the site. Agricultural use of the subject lands (and surrounding property) have occurred for at least 70 years, and will continue until such time as any one part of the proposed pit area is prepared for and undergoes extraction. Topographically, the subject lands are essentially a hill, with a top elevation at the east-central area of 113 metres above sea level (masl) and a general surface elevation of 100 masl at the north, south and west periphery of the proposed extraction area. The east flank of the hill which once formed the sand deposit was located on the adjacent property to the east, but it has been extracted through the Smith Pit operation on those lands, which pit has been in operation since the 1970's.

The proposed L&D Harrison Pit is centrally located on the Harrison property with the north licensed boundary being approximately 370 m south of Washburn Road and the south boundary between 380 m and 470 m north of the Cataraqui River. The entire east and majority of the west licensed boundaries are located on the property lines. The northern part of the west boundary is located interior to the Harrison property and is irregular in order to avoid a treed area which overlies an area of granitic bedrock.

2.3 **Applications**

The following applications are required to permit the proposed L&D Harrison Pit:

- An amendment to Township of South Frontenac Comprehensive Zoning By-law No. 2003-75 to re-zone the subject lands from 'Rural (RU)' to 'Pit 'B' (PB)'; and,

- Class 'A' Licence under the Aggregate Resources Act.

For the type of pit operation proposed, being a Class 'A' licensed pit (annual production greater than 20,000 tonnes) to be operated above the water table, an application under Category 3 of Aggregate Resources of Ontario Provincial Standards (AROPS) is required. The following technical information and site plan, as required for this Category of ARA licence application, have been prepared and are included in support of this Report, as indicated:

- Hydrogeological Evaluation (Malroz Engineering, January 2020) – see Tab 1;
- Level 1 and 2 Natural Environment Report (Ecological Services, January 2020) – see Tab 2;
- Stage 1&2 Archaeological Assessment (Abacus Archaeological, June 2019) and 'Review and Entry into the Ontario Public Register of Archaeological Reports' letter from Ministry of Heritage, Sport, Tourism, Culture Industries– see Tab 3; and,
- Aggregate Resources Act Site Plan (MHBC, January 2020) –see Tab 4.

In accordance with AROPS Category 3 application requirements, a noise assessment is not required on the basis that no extraction and/or processing facilities will occur within 150 metres of a sensitive receptor not located on the same property as the proposed pit.

Technical pre-consultation was held with the Ministry of Natural Resources and Forestry (MNRF) in late 2018, and re-verified with the Ministry of the Environment, Conservation and Parks (MECP) in early 2019, to determine possible natural heritage features of interest. Pre-consultation was held with Township of South Frontenac planning staff and Cataraqui Region Conservation Authority (CRCA) staff in the summer of 2019.

2.4 Project Description

The L&D Harrison Pit is proposed with an ARA licensed area of 25.2 ha (62.3 acres), a maximum extraction area of 23.1 ha (57.1 acres), and a maximum pit floor elevation of 94.5 m asl over the extraction area. This equates to a maximum depth of extraction of between 5 and 20 m over the site's extraction area.

Excavation setbacks, within which excavation is not permitted, are located in accordance with the ARA's Provincial Standards and established MNRF aggregate resource management policies. As described on the ARA Site Plan, the excavation setbacks are as follows:

- 15m at the west boundary, southern portion, where it follows the property line;
- 15m for most, and 30m for a portion, of the east boundary which follows the property line in its entirety; and,
- 15m at the south boundary, west portion, where the subject boundary segment follows the edge of a forested scarp which requires a buffer from extraction.

Setbacks are not required at other parts of the pit licensed boundary as Harrison is owner of the adjacent lands and no buffers are otherwise necessary.

With regards to the 15m setback at the east boundary, reference is made on the ARA site plan to the possible future elimination of this setback. This is associated with a request by Jack Smith, landowner and licensee for the adjacent Smith Pit to the east, to carry-out extraction at his pit up to the common property line with the proposed L&D Harrison Pit, subject to it being licensed under the ARA. If the Smith request is approved by MNRF, and the L&D Harrison Pit is licensed, it will be mutually beneficial to both landowners/licensees as it increases the amount of material that may be extracted; and, it reduces the amount of rehabilitation required as there would be two less pit faces where sloping is necessary. Approval of the request by Smith would also be an example of wise management of a non-renewable resource as it avoids ARA licensed aggregate resource being left in the ground.

An enhanced 30m setback is in place at the south end of the east licensed boundary. This is in accordance with recommendations from the hydrogeological consultant, Malroz Engineering, to ensure extraction does not occur within the area of a higher, or perched, water table in this part of the pit site.

The proposed pit is estimated to contain between 3.5 and 4 million tonnes of extractable material, subject to the amount of material required for rehabilitation (pit face sloping). The actual amount of aggregate excavated and/or shipped off-site will be reduced as the tonnage range provided is based on a calculation of the volume of material within the maximal extraction envelope. Testing of the extraction area has revealed there are layers (areas) of silty sand which are generally not considered to be a quality aggregate resource, and there may also be locations where bedrock is encountered during excavation.

The maximum annual tonnage limit is proposed to be 400,000 tonnes. Typical annual production from the pit is not expected to exceed 300,000 tonnes based on market needs, and production will gradually approach that amount over the first years of the operation until such time as it is fully established. The higher amount used for an annual tonnage limit is to account for variations in

aggregate demand and the nature of the construction industry, whereby every few years, it is expected that there will be non-typical larger contract(s). In order to bid on these contracts, it is necessary to have in place the allowance for additional supply capability.

Material will be excavated from the pit area using equipment such as excavators, shovels and loaders. Loading and excavating equipment which is designated for use at the pit site will be equipped with the 'broadband' type of reversing-alarm, as opposed to the traditional 'beeper' type of alarm. Excavation will be preceded by removing overburden (topsoil/subsoil) from the area where sand is to be excavated. Overburden from initial site preparation will be used to build a berm along the north licensed boundary, where it will also serve to provide noise mitigation. Extraction in the proposed pit will commence at the central portion of the northern licensed boundary and develop into an Initial Excavation Area, within which extraction will proceed towards the south, east and west. As extraction proceeds further south, it will occur in a generally southern direction at the west side and central parts of the site, and in an easterly direction on the east side.

Fueling for non-processing equipment operating at the site will occur in a dedicated off-site fueling area, to be constructed in the area of the existing farm buildings. The fueling area will be constructed in accordance with applicable Liquid Fuels Handling Code regulations, and use above-ground tanks with containment apparatus that meets Provincial requirements. Fueling may also occur on-site using mobile fuel trucks. Spill clean-up kits and supplies will be stored in the fueling area. In accordance with the ARA, a Spills Contingency Program will be developed for the L&D Harrison Pit operation.

Overburden stripped in subsequent extraction areas will also be used for berms at the nearest boundary. Where a licensed boundary is distant, the overburden will be temporarily stored in stockpiles in the vicinity of the extraction area. As the excavation becomes more fully developed, overburden resulting from site preparation will be used directly in progressive rehabilitation or stockpiled for later use in progressive rehabilitation. The entire site will not be prepared for extraction all at once but rather will be prepared in discrete areas in advance of excavation, which will similarly occur in discrete areas based on market demands for aggregate material. Areas that have not been prepared for excavation or are not under excavation or related operations will remain undisturbed and continue in use for agriculture.

Aggregate material excavated through the pit operation will in most cases require processing, particularly if a specialized or higher quality product such as 'brick sand', 'tile/septic sand', or 'winter sand' is being produced. Processing will occur through dedicated portable plants designed to screen, crush and wash the excavated raw aggregate to render an end-product which meets the necessary quality requirements for the particular end-use. These plants will move with the extraction operation, as it is inefficient to locate them any further than necessary from the excavation area. At the very outset of pit operations, when the Initial Excavation Area is being developed and berming has been constructed at the north boundary, processing may occur at original ground level until such time as a large enough excavation area has been developed below original grade. At that time, all processing will occur in the pit excavation, which is a standard best practice for noise mitigation.

The wash plant location is somewhat further restricted, as the plant must be supplied intermittently with water from a dedicated well. The plant will also require a system of settling ponds where the fine sediment from the washing process is removed by gravity from water that has passed through the plant, for the then clean water to be re-used and fed back to the plant as

part of a closed-loop system. Approvals from the Ministry of the Environment, Conservation and Parks (MECP) under the Ontario Water Resources Act (OWRA) will be required for these facilities and will be applied for once the L&D Harrison Pit is licensed and excavation has sufficiently advanced.

The proposed hours of operation are 7:00 am to 6:00 pm Monday to Friday for loading, processing and shipping; and, 7:00 am to noon on Saturday for shipping only, although Saturday operations are expected to be infrequent. There will be no operations on Sundays or Holidays as defined under the Employment Standards Act.

Material excavated and processed at the L&D Harrison Pit will be transported from the pit to customer or project locations by commercial highway trucks, most commonly with a 21 tonne capacity. At the annual maximum production limit of 400,000 tonnes, a mathematical average of 10 trucks per hour would leave the pit loaded with aggregate. At the typical annual expected maximum production of 300,000 tonnes, for a typical year once the pit is fully established, a mathematical average of 7 trucks per hour would leave the pit loaded with aggregate. Over the course of a typical shipping day, traffic would likely be higher in the morning and later afternoon, and lesser during the middle of the day, in proportion to the daily construction activity cycle. The averages provided above are calculated on the basis of shipping hours described previously and indicated on the ARA site plan, and excludes shipping during the Township's seasonal 'half-loads' restrictions which apply during March and April. Also excluded is counting any shipping between mid-December and mid-January, which will occur but at a markedly lower rate than the summer months.

Trucks travelling to and from the pit would access the Harrison property at the existing driveway at 2499 Washburn Road, travel for a short distance on the driveway, then switch to a purpose-built access laneway to the pit site. Trucks will use Washburn Road, and/or other roads such as Factory Road and Sunbury Road, to reach Battersea Road to the west and Highway 15 to the east, and thereby access the non-local market area which generally ranges from Napanee in the west to Kingston to Gananoque in the east.

The proposed pit, at the elevation of the pit floor, will be rehabilitated on a progressive basis back to a condition that can support agriculture as this is the most logical and viable use of the site, and one that is compatible with the surrounding area. Pit faces at the perimeter of the excavation will be progressively rehabilitated by sloping to a 3:1 gradient (horizontal:vertical) as required by the Provincial Standards and will be re-vegetated in a mix of grasses and trees to ensure slope stability. Sloping will occur by using in-situ material at the terminal extraction face, poorer quality aggregate or non-aggregate material from elsewhere on-site, or imported clean fill material.

Once extraction at the pit is complete, all pit related equipment will be removed as part of the final rehabilitation stage. That will also include undertaking any remaining physical rehabilitation such as backfilling, sloping, grading and vegetation establishment that remains from the last stage of the excavation sequence. Haul roads will be rehabilitated except for a road that will remain to provide access to the site and to the remainder of the property located south of the site.

3.0 TECHNICAL BACKGROUND

3.1 Surrounding Land Uses and Features

The subject lands are located within a rural area of the Township of South Frontenac, typified by farms, aggregate extraction sites, and rural residential uses (see **Figure 3**, Site Environs). Sunbury is the closest established settlement area, located some 3 km northwest of the subject lands. The site is located on Washburn Road, between Ida Hill Road 600 m to the west and Factory Road 1km to the east. Major roads are Battersea Road at 3km west (straight-line distance), Highway 15 at 5km east, and Sunbury Road at 1km north.

Farm activity occurs to the east and west of the subject lands, and to the north (on the north side of Washburn Road). The farm to the west has most recently been in use for cattle grazing, and the farm to the east in use for hay. On the same farm property to the east of the site, is a pit operation under ARA licence to Jack Smith. The Smith Pit has been in operation for over 40 years, although extractive activity has been minimal for the last several years and there has been a significant depletion of aggregate material.

One residential dwelling occurs within 150m of the subject lands, being the house on the Harrison property, which is rented to a tenant. The closest non-owned house is approximately 260m away, and there are other homes over 300m away from the proposed pit (north boundary).

The predominant natural feature in the local area is the Cataraqui River and its associated River Styx Provincially Significant Wetland (PSW). At its closest point, the boundary of the L&D Harrison Pit is approximately 50 m away from the nearest PSW boundary, as mapped in the field by Ecological Services. The Cataraqui River itself ranges from 380 m to 470 m away from the pit, with wetland and forest in between.

3.2 Aggregate Resources

The geological deposit located on the subject lands is mapped in Aggregate Resources Inventory Paper (ARIP) 187 for the County of Frontenac, published in 2012 by the Ontario Geological Survey (OGS), as a sand and gravel deposit of 'tertiary' significance. While this is the lowest sand and gravel classification used by the OGS, it should be noted that the ARIP maps only one deposit of appreciable size in the southern part of the County at the 'secondary' level of significance, and it is predominantly under ARA licence or has been depleted through prior extractive activity. No deposits of 'primary' significance have been mapped in southern Frontenac County.

Harrison has investigated the proposed pit site by test drilling and test pitting and is satisfied the subject lands contains sufficient resource in terms of quality and quantity to justify the pit application. An important indicator of the aggregate potential of the deposit is the presence of the existing ARA licensed Smith Pit on the adjacent property to the east of the subject lands. This pit has been in existence since at least the 1970's, and was brought under Provincial regulation (licensing) in 1984 when the former Storrington Township was designated under the Pits and Quarries Control Act, a predecessor to the current Aggregate Resources Act.

The presence of aggregate resource on the subject lands is further established through its identification as a 'Sand and Gravel Resource' and designation as 'Resource Lands (Mineral Aggregate)' in the County Official Plan and its land use designation as 'Mineral Aggregate' in the Township Official Plan. The factors which led to such an OP designation would have included the presence of the existing Smith Pit, and mapping contained in Mineral Aggregate Resource Inventory of the County of Frontenac, published by the OGS in 1987, which Provincial aggregate publication preceded ARIP 187.

3.3 **Agricultural Resources**

The subject lands are actively farmed, with the most recent crop being soybean. As is common throughout Ontario (and beyond), where pits are frequently developed on agricultural lands, farming activity will continue on portions of the licensed area which are not in use for pit purposes. Once a sufficient area of the pit is excavated to its maximum depth, the pit floor will be returned to some form of agricultural use through progressive rehabilitation. The type of use, for example whether pasture or crop, will be dependent on soil conditions at the time.

The subject lands are not Township OP designated 'Agricultural' and as such there is no Provincial, County or Township planning policy that requires agricultural rehabilitation. That being said, agricultural rehabilitation is the most logical and appropriate use of the site and is desired by Harrison.

3.4 **Water Resources**

In accordance with AROPS Category 3 requirements, the application for the L&D Harrison Pit is for a pit that will be operated above the water table, which by AROPS definition means not within 1.5 m of the established water table. An evaluation of the water table location was undertaken by Malroz Engineering, as part of the ARA Summary Statement requirement. It concluded that a maximum/deepest pit floor elevation of 94.5 m above sea level would provide a 2.0 m separation to the water table, thereby exceeding the minimum 1.5 m separation as required by Provincial Standards.

A further conclusion of Malroz's evaluation was that there is a perched water table feature at the south end of the east boundary of the site, as indicated by higher water levels in a monitoring well in that area. Malroz indicate the perched water table appears related to the dug pond located on the Smith Pit lands further to the east. To ensure extraction does not occur within the higher water table in this area, and no impact to the perched water table and dug pond, Malroz has recommended a 30m excavation setback in the subject area and this has been included on the ARA site plan.

There are no established/defined surface water courses or features on-site. This is to be expected given the hill-like topography of the sand deposit and is indicative of the high degree of surface water infiltration that occurs within the pervious sandy soils. The Hydrogeological Evaluation report assessed whether there is potential for adverse effects to groundwater and surface water resources. It concluded no adverse effect to groundwater or surface water resources is anticipated from the proposed extraction. The Malroz evaluation is provided at Tab A of this Report.

Processing operations to occur on-site may include the use of a wash plant, which will require a source of water. The viability of locating a wash plant on-site will be determined once the pit has reached a fuller degree of operation such that material type, quality and quantity can be assessed. Any wash plant operated at the site will involve obtaining Provincial approvals from the Ministry of the Environment, Conservation and Parks (MECP) for a source of water, which will likely be an on-site well dedicated for that purpose, and for the management of water that has been used in the wash plant process, using settling ponds. As is typical for such types of processing, water from source to use to re-use is managed in a closed-loop system without the need for any chemicals or other materials.

3.5 **Natural Heritage Resources**

Ecological Services prepared a Level 1 & 2 Natural Environment Report in accordance with the AROPS Category 3 application requirements. The Report also fulfils the requirement of an Environmental Impact Study (EIS) as described in the County Official Plan and an Environmental Impact Assessment (EIA) as described in the Township Official Plan.

The Natural Environment Report determines whether any significant natural features exist on or within 120 m of the subject lands (proposed licenced area). Should it be identified that significant features may be potentially affected by the proposed operation, then preventative, mitigation or remedial measures must be addressed.

By virtue of the proposed L&D Harrison Pit site being a farm operation for, likely, at least 70 years, and most currently a series of soybean fields, the Level 1 Natural Environment Report did not identify any significant natural heritage features on-site. The Report did identify significant wetland, significant wildlife habitat, fish habitat, species at risk, and significant woodland in the lands adjacent (within 120 m) to the site.

Accordingly, these features were subject to a Level 2 assessment, including field work, data gathering and analysis, to determine appropriate preventative, mitigation or remedial measures, as applicable. The Report findings are presented below. In respect of the significant natural heritage features located adjacent to the site, the Natural Environment Report, or EIS/EIA, found that negative impacts, as described in applicable planning policy documents, are not expected from the proposed pit activities.

Significant Wetland

The study conducted for the L&D Harrison Pit determined significant wetland was located within 120 m to the west and south of the site. The wetland to the west was considered suitable for 'complexing' as part of the Provincially Significant Wetland (PSW) known as the River Styx wetland, which is itself located south of the site.

Features and functions analysis of wetland areas is based on four criteria; biodiversity/sensitivity, hydrology, fish habitat, and special features. For the wetland to the west, the study found only the biodiversity/sensitivity criteria to be of some relevance to overall significance. However, this was quite limited given ongoing impacts from farming and other activities; and, the dominant wetland species being hardy plants which are resistant to impacts and which in and of themselves is indicative of a lower level of biodiversity and sensitivity. Silt fence mitigation recommended primarily for a nearby amphibian breeding area (see below), is referenced in the study as being appropriate for mitigating impacts to the wetland also.

For the River Styx PSW to the south, the closest area of PSW is approximately 50 m away, and approximately 1.5 ha of the PSW is within 120 m of the site. Mitigation in the form of a15m wide excavation setback from the woodland to the north of the PSW is recommended, meaning the closest that pit operations will occur to the PSW is 65 m. The intervening lands will include anapproximate 30m wide woodland, and an approximate 10m wide shrub boundary, which will provide an additional buffering effect. Similar to the wetland to the west, described above, only the biodiversity/sensitivity criterion was of some relevance. The vegetation closer to the site is dominated by low biodiversity plant species. Although higher biodiversity species exist in the PSW, they are much further removed from the site such that no additional mitigation is recommended for them, beyond what is recommended more directly for significant woodlands and significant wildlife features (see below).

No impacts to the wetland features are identified from the pit due to a lack of potential wetland/upland interactions, the length and nature of the intervening buffers, the robustness of the closest parts of the wetlands (and all the wetlands west of the site), and the relatively benign nature of the subject pit operation.

Significant Wildlife Habitat

The study found three areas of amphibian breeding habitat in wetland areas adjacent to the proposed L&D Harrison Pit. The study states that breeding amphibians are generally tolerant to nearby human activity, as long as there is no direct intrusion into their breeding areas. In the subject pit proposal, the separation distances and intervening vegetation associated with the three significant amphibian breeding areas will provide appropriate buffering. The only potential impact to any nearby adjacent amphibian breeding habitat would be in the case of any water diversion. This will not be required for the operation of the pit.

Mitigation, through installation of a silt fence, is recommended for the breeding area to the west of the northwest corner of the pit site.

Fish Habitat

The study assumed the presence of fish in the dug pond located on the Smith licensed pit site to the east of the proposed L&D Harrison Pit site. Desktop mapping shows the pond to have a limited connection to fish habitat further east, although it is reported that drainage, if any, was blocked many years ago thereby creating the permanent pond for the landowner's use. Given the circumstances of the pond, the fish, if any, are expected to be hardy generalist species that would not be sensitive to adjacent impacts. The study also acknowledges the 30 m excavation setback recommended by the hydrogeologist, and shown on the ARA site plan, which results in a total separation distance from the pond of about 70 m, described as "more than adequate" for the assumed fish habitat in the pond.

Endangered and Threatened Species

Bobolink (Threatened)

Bobolink observations were made more than 120 m to the east of the proposed L&D Harrison Pit site, but with no breeding activity was observed. Bobolink were also observed in a pasture field to the west of the site, where there was evidence of breeding. An assessment of the location of the core breeding locations relative to the proposed pit extraction area led to the conclusion that the pasture field represented MNRF-defined Category 3 habitat, which is considered to have a high level of tolerance for activity. The study also acknowledged that with no direct intrusion into this field from the proposed pit operation, and given the nature of the proposed pit operation, that no special mitigation measures are required.

Bats (Endangered)

Two bat species listed as 'endangered', the Little Brown Myotis bat and Tri-Colored bat, were recorded on-site through automatic monitors. Analysis of the data has led to the conclusion that the recordings are from bats foraging for food. Further, the study concluded that there was no suitable key or essential bat hibernacula on-site, whereas such habitat does likely exist in the surrounding area, including possibly the barn structure on the Harrison property located north of the proposed pit site.

As a general precaution, the study has recommended future tree clearing within the pit boundary takes place only outside of the bat breeding and roosting season from mid-April to mid-September.

Barn Swallow (Threatened)

Several barn swallow nests were observed is the old barn foundation located more than 120 m to the north of the proposed pit site. Given the distance from the site, no special mitigation measures were recommended. The study further stated the tolerance that barn swallow have exhibited to human and machine activity carried-out in 2019 in close proximity to their nests.

Significant Woodlands

Three woodland areas have been identified as being 'significant', each on the basis of providing protection to an adjacent feature. Two of the woodlands are located just beyond the boundary of the proposed L&D Harrison Pit site, and the third is much farther removed, with farm field in-between.

The small cultural woodland beyond the northwest corner of the site provides protection to potential significant wetland. The second deciduous woodland, located just beyond the west half of the south boundary of the site, is about 0.5 ha in size and provides protection to determined (i.e. known) significant wetland located beyond the steeply sloped forest. The third woodland, located 110 m away from the east half of the south boundary of the site, is also deciduous, between 7 and 10 ha in size, and provides protection to fish habitat associated with the Cataraqui River (River Styx).

Of the three significant woodlands identified in the study, mitigation is recommended for the steeply forested woodland at the west half of the south boundary. The recommended mitigation is in the form of a 15m excavation setback that will apply to this section of the licensed boundary of the proposed pit.

4.0 PLANNING POLICY REVIEW

4.1 Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) provides policy direction on matters of Provincial interest related to land use planning and development, and sets the policy foundation for regulating the development and use of land through Municipal planning documents. The PPS provides for the appropriate development of land, while protecting resources of Provincial interest, public health and safety, and the quality of the natural and built environment.

The PPS supports a comprehensive, integrated and long-term approach to planning, and recognizes linkages among policy areas. The PPS is to be read in its entirety and the relevant policies are to be applied to each situation. The policies in the PPS are outcome-oriented, and some policies provide flexibility in their implementation provided that Provincial interests are upheld.

The Province's resource base, consisting of specific natural heritage features, water, agriculture, mineral aggregate, and cultural heritage and archaeology, provide important environmental, economic and social benefits. The wise use and management of these resources over the long term is a key Provincial interest.

The PPS states that mineral aggregate resources shall be protected for long-term use; and, that as much of the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible.

The proposed L&D Harrison Pit contains significant aggregate resources within a close to market area where aggregate resource extraction is an established use. Extracting aggregate resources close to where they are used reduces the amount of greenhouse gas emissions, transportation costs, and road network impacts from the trucks used to transport these resources.

Design recommendations have been incorporated into the L&D Harrison Pit Site Plan based on technical recommendations to ensure that no negative impacts occur to the significant natural heritage features or adverse impacts on surrounding land uses as a result of the proposed operation.

The application is consistent with the PPS in the following respects:

- The proposed pit has been sited, and its operation has been designed and will be buffered, to mitigate effects on nearby rural residences (Policy 1.2.6.1).

- The Level 1 and 2 Natural Environment Report found there to be no natural heritage features of Provincial interest located on the subject lands. Provincially significant, wetlands, significant wildlife habitat, fish habitat, endangered and threatened species, and significant woodlands were found to exist adjacent to the site. However, negative impacts to these adjacent features are not expected, subject to implementation of mitigation measures (Policy 2.1).

- The potential impacts of the operation relative to groundwater and surface water have been assessed and no adverse impacts are anticipated (Policy 2.2.2).

- The proposed pit makes significant aggregate resources available from a close to market location. The proposed operation shall be regulated by the ARA Site Plan which includes design features to minimize social and environmental impacts (Policy 2.5.2.1 & 2.5.2.2).

- The pit will undergo progressive and final rehabilitation to permit agricultural use of the pit floor which is compatible with surrounding land uses and approved land use designations (Policy 2.5.3.1).

- The subject lands do not contain a significant cultural heritage landscape (Policy 2.6.1).

- A Stage 1&2 Archaeological Assessment concluded there were no significant archaeological resources (Policy 2.6.2). This Assessment has been accepted and entered in the Public Register by the Ministry of Heritage, Sport, Tourism, Culture Industries.

Approval and operation of the proposed L&D Harrison Pit is consistent with the PPS, represents good planning, wise resource management, and is in the public interest after considering the economic, environmental and social factors that apply to this application.

4.2 **County of Frontenac Official Plan**

The County of Frontenac Official Plan was approved by the Province in January 2016 and is the first official plan for the County municipality. The Plan contains broad policies and mapping schedules which are based on the County's physical, social and economic environment, and designed to achieve consistency with the Provincial Policy Statement whilst at the same time recognizing the local (Township) Official Plans that exist in the County.

The 'Introduction' section of the County Official Plan states:

> *It is not the intention of the Frontenac County Official Plan to interfere with those planning matters which are considered to be the responsibility of the local municipalities. Local municipal Official Plans complement the Frontenac County Official Plan by providing detailed strategies, policies, and land use designations for planning and development at the local level.*

In keeping with the high level context of the County OP, all lands are designated 'Rural' except where they are identified under specific mapping such as Natural Heritage Areas (or other

identified natural resources), Resource Lands (eg. minerals, mineral aggregate, forestry, and prime agricultural); and, Waste Disposal Sites.

Under these conditions, the proposed L&D Harrison Pit is County OP designated as 'Resource Lands (Mineral Aggregate)', and the applicable County planning policy for addressing a pit land use development proposal are those which concern or have possible implications to Mineral Aggregates and Natural Environment. These directly applicable and other more generally applicable County policies are discussed below.

Natural Environment

Natural Heritage Areas are identified on Appendix "1A" to "1C" of the County Official Plan. This mapping has been shown in **Figure 4a** using the County web-site's on-line mapping tool which provides much higher resolution mapping capability.

The Natural Environment Level 1 & 2 Report prepared by Ecological Services, as required by the Provincial Standards in support of the ARA application, also serves the purposes of an Environmental Impact Statement (EIS) as per the County OP. Guidance for completing an EIS is provided at Appendix "3" of the OP.

The EIS determined whether any significant natural features exist on or within 120 m of the subject lands (proposed licensed area). The Report acknowledges the proposed pit site is exclusively an ongoing farm operation and has been a farm since at least the 1950's. As such, there are no natural features of any planning policy significance on the subject lands. Such features do however exist within 120m of the proposed L&D Harrison Pit. Those natural heritage features of significance, and the specific OP policy that addresses that feature, are as follows:

- Wetlands – OP Section 7.1.4.1
- Significant Wildlife Habitat – OP Section 7.1.4.3
- Fish Habitat – OP Section 7.1.4.4
- Endangered and Threatened Species – OP Section 7.1.4.5
- Significant Woodlands - OP Section 7.1.4.6

In all the above policy provisions, the OP recognizes the value of such features. The policies identify that development and site alteration is not permitted within lands adjacent to the subject feature unless it has been demonstrated that there will be no negative impacts on the natural feature and/or its ecological function. As required by the OP, the demonstration of this is undertaken through the completion of an EIS.

For all the above policy provisions, and the subject natural feature itself, the EIS completed for the L&D Harrison Pit proposal demonstrates that no negative impacts, as defined in applicable planning policy, are expected. Mitigation measures are recommended for species at risk, significant wetlands, and significant wildlife habitat, and these have been identified on the ARA site plan. In the case of fish habitat, the EIS references the 30m excavation setback on the pit site combined with the 40m separation to the dug pond on the Smith property. The total separation distance of 70m exceeds the 30m minimum setback stated in Section 7.1.4.4 of the OP, albeit that the applicability of such a setback is limited at best given the circumstances in this case.

Section 3.5 of this Report provides greater detail on how the EIS has addressed the proposed L&D Harrison Pit as a form of development adjacent to the subject natural heritage features, and their related County OP policy provisions.

Mineral Aggregate Resources

Sand and Gravel Resources are identified on Appendix "1D". This mapping has been shown in **Figure 4b** using the County's on-line mapping tool.

It should be noted that the County mapping for Sand and Gravel is taken from the ARIP 187 report, OGS published in 2012, which updates mapping in the previous Mineral Aggregate Resource Inventory report, published by the OGS in 1987.

County OP Section 2.1.2.2 states that mineral aggregate deposits are an important part of the County's economy and must be protected for future use, while recognizing that extraction be undertaken in an environmentally sound manner that minimizes community disruption and whereby adequate protection is provided to significant natural environment features. The responsibility for identifying and managing mineral aggregate resources is at the Township and Township OP level.

There are also several County OP policies of more general relevance to the L&D Harrison Pit proposal. These policies concern Archaeological Resources, Rideau Canal World Heritage Site and Frontenac Arch Biosphere Reserve designations by UNESCO, Water Resources, Amendments to Township Official Plans; and, Land Use Compatibility. These are discussed below, in order.

Archaeological Resources – OP Section 6.2
County and Township OP policy requirements for the completion of an archaeological assessment have been met through the work and report carried out by Abacus Archaeological Services. This type of assessment is also a requirement of the ARA application process. The Assessment found no archaeological resources on the proposed site, and the Assessment has been accepted by the Ministry of Heritage, Sport, Tourism, Culture Industries.

Rideau Canal World Heritage Site – OP Section 6.4
County OP policy recognizes the cultural heritage resource aspects of the Rideau Canal. The Plan references the Rideau Corridor Landscape Strategy which provides for various planning and management processes related to development applications along the Canal waterway. These processes address matters such as cultural/built heritage landscapes, Algonquin First Nation[1] history, and conservation of the Canal's terrestrial and marine archaeological resources.

During pre-consultation for the proposal, it was indicated that the Rideau Waterway Development Review Team would be involved in the review of the proposal through the Zoning By-law Amendment (ZBA) application process, and that viewscape considerations would be a focus of its review. The following information is provided to assist the Review Team. The Harrison property, on which the proposed L&D Harrison Pit is located, borders the north limit of the Great Cataraqui River, also known as the River Styx, which forms part of the Rideau Canal. The closest boundary of

[1] It should be noted that the proposed L&D Harrison Pit site does not fall within the Algonquin Land Claim Territory area, as per Figure 6 of the County OP.

the proposed pit site to the river is located between 380 m and 470 m north of the river[2]. This intervening area is comprised of wetland and deciduous forest. The highest topographic elevation of the site is approximately 113 m asl which is approximately 1 km (on average) north of the river. The elevation of the river is reported as 89 m asl. Given these factors, the proposed L&D Harrison Pit operation is not expected to be detrimental to the viewscape of the canal corridor for those who travel on it or use it for recreational purposes.

Frontenac Arch Biosphere Reserve – OP Section 6.5

The Frontenac Arch is the figurative name given to a 2,700 square kilometre (0.27 million ha) geological bedrock connection between the bedrock of the Canadian Shield and the Adirondack Mountains in New York State. The County Plan provides recognition of the natural and historic value of the Frontenac Arch to the Frontenac region and establishes an intent to promote its long term viability.

Water Resources – OP Section 7.2

The proposed L&D Harrison Pit site is located within the Cataraqui Source Protection Area, with most of the site mapped as 'Highly Vulnerable Aquifers & Significant Groundwater Recharge Areas'. The site is not located in any 'Wellhead Protection Area' or 'Intake Protection Zone'. The operation of a pit or any associated facilities is not listed in Section 5.5.1-HR of the Cataraqui Source Protection Plan. This section identifies those activities which require specific consideration by municipalities when considering development applications in highly vulnerable aquifer or significant groundwater recharge areas.

Malroz Engineering has specifically considered the Cataraqui Source Protection Area in their evaluation. It is their opinion that the risk of adversely impacting groundwater from the proposed pit operation is low, subject to the proposed fuel handling procedures and locations that will be in place for the pit operation.

Of the applicable County OP Water Resources policies, the proposed pit will conform with the policy stating that groundwater and surface water quality and quantity will not be negatively impacted. Most directly, this is due to the pit being operated above the water table, and other environmental regulations or approvals that are in place or will be required to permit ancillary operations to the pit, such as processing.

Amendments to the Township Official Plans – OP Section 8.3

County OP policy requires that an amendment to a Township Official Plan shall be considered in accordance with the Provincial Policy Statement (PPS), County OP policies, applicable Township OP policies; and, the Planning Act and land use planning principles in general. Such amendments are considered subject to any necessary and justified supportive information being provided. As explained previously, no amendment is necessary to the Township OP for the subject proposal.

Land Use Compatibility – OP Section 8.9

County OP policy requires that land use conflicts be avoided as much as possible. Suggested approaches to achieve this include consideration of OP policies, Zoning side-yards, and well-designed development proposals.

[2] As a result of these distances and the lack of any physical or functional connection to the river, the proposed L&D Harrison Pit site does not fall within lands identified as 'Waterfront Areas', as per Township OP Policy 3.3.3.4

Township OPs are required to contain provisions addressing impacts such as noise, dust, contamination, odour, amongst others, that may result from the proposed development. More specifically, Township OPs are required to provide policies and guidance for establishing setbacks between sensitive uses and specific land uses such as rail lines, mining and aggregate operations, and heavy industrial operations.

As the proposed L&D Harrison Pit is an aggregate operation, the Township OP considers land use compatibility through its 'Influence Areas' and 'Buffering' policy provisions. These provisions have been addressed in the subject pit proposal through site location, operational practices, and the required adherence to ARA and other Provincial legislation that serves to control and mitigate against adverse impacts. One direct example of this is the ARA Prescribed Conditions that will be attached, automatically, to any licence that is issued by the Ministry of Natural Resources and Forestry for the pit. The conditions are:

- *Dust will be mitigated on site.*
- *Water or another provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust.*
- *Processing equipment will be equipped with dust suppressing or collection devices, where the equipment creates dust and is being operated within 300 metres of a sensitive receptor.*
- *Any recommendations and/or recommended monitoring program identified in the technical reports will be described on the site plan and all records will be retained by the licensee and made available upon request by the Ministry of Natural Resources for audit purposes.*
- *A Spills Contingency Program will be developed prior to site preparation.*
- *Fuel storage tanks will be installed and maintained in accordance with the Gasoline Handling Act.*
- *If required, a Certificate of Approval will be obtained for the discharge system should water be discharged off site.*
- *If required, a Certificate of Approval will be obtained for processing equipment to be used on site, prior to the operation of the plant.*
- *If required, a Permit to Take Water will be obtained for utilizing ground and/or surface water.*

4.3 **Township of South Frontenac Official Plan**

The proposed L&D Harrison Pit is designated in the Township of South Frontenac Official Plan (March 2003, Provincial approval May 2013) Schedule 'A', Land Use, as 'Mineral Aggregate' and 'Rural'. Designating the lands in this manner has established the long-term Township planning and land use objective for the designated lands. It also serves to implement Provincial and County Official Plan planning policy that safeguards the deposit for future use by preventing encroachment by land uses which may preclude or hinder future access to the resource.

Section 5.5 of the Township Official Plan (OP) is entitled 'Mineral Aggregate' and contains the local planning policies that require consideration in any proposal to establish a new pit operation in the Township.

The following statement is provided in the introduction to Section 5.5 of the OP:

> *The Mineral Aggregate designation includes sand, gravel and limestone resources. These resources have been identified in studies by the Ministry of Natural Resources. The Township recognizes the importance of its mineral aggregates as a limited and non-renewable resource which may be required to meet the needs of both the Municipality and surrounding areas. It is the intention of Council to protect wherever possible and practical the sand and gravel resources and a reasonable amount of bedrock resources for aggregate extraction and to ensure that the resources are utilized in accordance with proper controls.*

The subject lands are mapped in the Land Use Plan as 'Mineral Aggregate' and 'Rural', in relative proportions of 70 percent and 30 percent, respectively (see **Figure 5**, Township Official Plan). Of note, the lands designated as 'Rural' are at the south end of the subject lands.

Section 5.5.1 of the OP addresses uses permitted within the 'Mineral Aggregate' designation. It states the 'Mineral Aggregate' designation includes both existing operations licensed (under the Aggregate Resources Act) by the Province (Ministry of Natural Resources and Forestry) as well as reserve areas, where no licence is currently in place.

The policy goes on to state as follows:

> *For the areas designated as Mineral Aggregate, the area to be zoned or licensed may extend beyond the boundaries of the designation shown on Schedule 'A' provided such expansion is minor, reasonable, respects any separation distances and does not adversely impact on existing uses in the area.*

The above policy is applicable in the subject application given the area proposed for licensing (and re-zoning) does contain lands under the 'Rural' designation. During pre-submission consultation, it was agreed by Township Planning Staff that the subject application was in accordance with the above described policy. Specifically, the policy provisions considered addressed were that the exceedance of the Mineral Aggregate designated area is minor and reasonable, on the following basis:

- 70 percent of the proposed pit area is under a 'Mineral Aggregate' designation;
- Provincial geological/aggregate mapping now available, which was not available at the time the Township OP was prepared in the early 2000's, identifies the area designated 'Rural' as containing significant aggregate resources; and, this is corroborated by the Applicant's own subsurface testing;
- separation distances from relevant off-site natural features are appropriate, specifically with regard to the separation or buffer distance from the River Styx Provincially Significant Wetland (PSW) and other wetland areas to the west determined as significant, as mapped in the field by a professional biologist and authorized wetland evaluator; and,
- including the 'Rural' designated lands does not result in a reduction in separation distance between the proposed pit and existing residential land uses located along Washburn Road to the north.

A Township OP policy that also requires consideration when determining the extent of any OP mapped land use designation is Section 9.0, Interpretation. This policy describes the intent of the OP is that such boundaries "*be considered as approximate only, except where bounded by such features as existing roads, railways, rivers or other natural features*".

With respect to the issue of separation distance, two other OP policy sections are of note and require consideration.

Sections 6.9 and 6.20 of the OP are in the General Policies section and address Buffering and Influence Areas, respectively. The intent of these policies is to ensure land use compatibility issues are assessed, and any identified issues are mitigated by the development proponent to the extent required. These policies are considered in conjunction with Section 5.5.2 of the OP, a 'Mineral Aggregate' policy that specifically identifies the 'Influence Area' between a house and a pit above water table, as 150m. This separation distance is met and exceeded by the subject application, for all homes not on the Applicant's property.

Environmental Protection policies of the OP are in Section 5.2. These are relevant to L&D Harrison Pit proposal given the EP designation mapping for the River Styx PSW that is located within 120m of the site, and for other natural heritage features encompassed by the EP designation which occur adjacent to the proposed pit, although none occur on the site itself. Two of the subject features are specifically addressed through Township OP policy: Significant Wetland (Section 5.2.5), and Endangered and Threatened Species (Section 5.2.9).

Consistent with the PPS and the County OP, Township policies state that evaluated wetlands that meet the criteria for Provincial significance have been designated 'Environmental Protection (EP)', and will be protected for their natural heritage, environmental, social, recreational and economic benefits. Development and site alteration is not permitted within any significant wetlands. Development adjacent to, and specifically within 120m of a Provincially Significant Wetland, is only permitted if an Environmental Impact Assessment (EIA), as per Section 5.2.11 of the OP, concludes there will be no negative impacts on the natural features or ecological functions of the wetland. In the case of endangered or threatened species habitat, OP policy requires any development or site alteration within 50m of such habitat will require the submission of an EIA.

As discussed previously with regard to the Natural Environment policies of the County OP, the Natural Environment Level 1 & 2 Report prepared by Ecological Services, as required for the ARA application, also serves the purposes of an EIA as per the Township OP. The Report/EIA concluded that no negative impacts are expected on those features which receive specific Township planning policy consideration.

An applicable General policy of the Township OP is at Section 6.4, Agency Review. This section describes how development applications are subject to review by the applicable Conservation Authority (CA). With regard to the subject application, pre-submission consultation has occurred with the Cataraqui Region Conservation Authority (CRCA), being the CA of jurisdiction. Further, CRCA will be circulated on the ARA licence application package, including the Natural Environment Report and Site Plan, for its review and comment, in accordance with ARA procedures. As a result of pre-consultation with Township and CRCA staff, it is understood that the Zoning By-law Amendment application will be reviewed by the Rideau Waterway Development Review Team, to address the cultural heritage aspects of the Rideau Canal corridor.

Section 5.5.7 of the OP deals with Rehabilitation. It states that active pit sites are to be rehabilitated and/or closed in accordance with the provisions of the ARA. This is addressed in the ARA Site Plan that forms part of the ARA application. The policy also describes the requirements for agricultural rehabilitation where a pit is proposed on land that is OP designated as 'Agriculture'. While not applicable in the case of the subject application, the Applicant will be rehabilitating the pit area to a condition such that agricultural uses can occur where rehabilitated conditions allow.

Section 5.5.5 of the OP describes the information required by Council in their consideration of an application for a new pit, when an Official Plan Amendment (OPA) is required. Notwithstanding the process of approval of the proposed pit operation is not subject to an OPA, as described previously, Section 5.5.5 of the OP is discussed below with reference to technical information that is available through the ARA application requirements.

OP Section 5.5.5: ***When considering an amendment to the Official Plan for the expansion of an existing pit or quarry or the establishment of a new pit or quarry, Council shall require the applicant to supply information prepared by qualified individuals addressing the following issues:***	
OP Policy	**Consideration**
impact on ground and surface water;	Malroz Engineering undertook an investigation of the site to determine at what maximum depth the pit may be operated at in order to remain at least 1.5m above the water table. The investigation included subsurface testing/monitoring both on-site and in the adjacent Smith Pit excavation. A review of local well records and other published geological information was also undertaken. Malroz recommend that the extractable area of the pit site operate at maximum depth of extraction of 94.5 masl elevation. In doing so, Malroz conclude the pit will operate 2.0 m above the established groundwater table. This exceeds the ARA requirement of a 1.5m separation distance. Malroz conclude that adverse impacts are not anticipated on groundwater resources or surface water features. A recommended 30m excavation setback to maintain separation from a perched water table and an off-site perched pond has been included on the ARA site plan. See Malroz Hydrogeological Evaluation at Tab 1.
environmental and natural heritage impacts;	Ecological Services was retained to complete a Natural Environment Report for the pit proposal, as per ARA requirements. The report addressed County EIS and Township EIA requirements. No natural heritage features of planning policy concern were found on the subject lands, largely a result of its at least 70 years of farming activity. Wetlands, Significant Wildlife Habitat, Fish Habitat, Endangered and Threatened Species and Significant Woodlands were found to exist adjacent to the site, within 120m. These were further assessed in the Report which found that negative impacts on the feature or its ecological function were not expected as a result of the pit proposal. For some features, mitigation measures were recommended. These have been incorporated into the ARA sit plan. See Ecological Services' Natural Environment Report at Tab 2.

noise and dust impacts;	Land Use Impacts (noise, dust, blasting): Residential uses on those properties beyond the site are far enough away from the proposed extraction area that the ARA Provincial Standards do not require the completion of a noise study. As this is a pit operation, no blasting is required for aggregate extraction. The proposed pit will operate with regard to accepted best management practices in order to mitigate noise from the operation. This includes building a berm at the north boundary of the site, commencing extraction by digging below the original grade to form an open pit area. Any processing that may initially have to occur on original ground will be moved into the excavated area as soon as a sufficient area is developed. Further, noise from equipment used in the aggregate operation (for excavating, loading, processing and shipping), is mitigated at source with appropriate noise attenuation devices. Reversing alarms as required by labour legislation will be of the 'broadband' type for excavating and loading equipment dedicated for use at the site. Dust resulting from the proposed pit operation will be controlled under the terms of the Aggregate Resources Act licence issued for the pit. The licence will be issued with the following conditions: - Dust will be mitigated on site. - Water or another provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust. - Processing equipment will be equipped with dust suppressing or collection devices, where the equipment creates dust and is being operated within 300 metres of a sensitive receptor.
land use impacts;	Land use impacts are not considered to exceed acceptable levels on the basis of: - the location of the proposed pit operation with reference to adjacent land uses and natural features; - adherence to accepted best management practices; - incorporating technical report recommendations into the pit operation through the site plan; - having to obtain additional Provincial and Municipal approvals to address on-site processing and off-site haulage. - adherence to Township OP prescribed land use compatibility policies (buffering, influence area).
traffic impacts	Truck traffic is calculated to be in the order of up to 7 to 10 loads per hour, an average amount calculated on the basis of typical expected and maximum allowed annual production from the pit, once fully-established and projects are being supplied. Actual traffic will depend on demand which is not possible to accurately predict. Trucks will use an existing driveway location to access Washburn Road and will then travel east or west, including the use of other local roads, to reach Battersea Road, Sunbury Road and Highway 15, to travel to Highway 401 and the general market area, the main market being the the Kingston area.

archaeological and cultural heritage impacts.	Abacus Archaeological Services was retained to carry out an archaeological investigation of the site. Abacus conducted a Stage 1 and Stage 2 investigation in accordance with Provincial guidelines with the result that no significant archaeological resources were found. The Assessment has been entered into the Public Register. See Abacus Stage 1&2 Archaeological Assessment at Tab 3.

4.4 Township of South Frontenac Zoning By-law

Township of South Frontenac Comprehensive Zoning By-law 2003-75 (revised June 2016) identifies the Zoning of the subject lands as 'Rural (RU)' (see **Figure 6**, Zoning By-law Schedule). The 'Rural' zoning does not include a pit as a permitted use. Further, OP Section 5.5.1 states that the Zoning By-law will place pits and quarries in separate categories, and Section 5.5.3 states as follows:

> *Generally, only existing licensed pit and quarry operations will be zoned in the Zoning By-law. The zoning will define whether a pit or quarry is permitted and identify the zone requirements that will apply.*
>
> *Within the areas designated Mineral Aggregate in the Official Plan, the establishment o f a new pit or quarry or the expansion of an existing operation onto lands not zoned for such use shall require an amendment to the Zoning By-law.*

Accordingly, an amendment to Township Zoning By-law 2003-75 to re-zone from Rural Zone to 'PB - Pit "B"' Zone (Section 23 of the By-law) is required and is being submitted concurrent with the ARA application for a licence. The 'PB - Pit "B"' Zone permits the use of land as a pit producing more than 20,000 tonnes a year, and associated processing activities. The definition of 'pit' in the Zoning By-law is consistent with its definition under the ARA.

The proposed L&D Harrison Pit is in compliance with the 'PB – Pit "B"' Zone Regulations (By-law Section 23.3) with regards to excavation and processing setbacks and zone side-yards with the exception of the 90m minimum processing setback distance from a residential use. In this case, in accordance with the Provincial interest in aggregate resource management and the Aggregate Resources Act, the Site Plan overrides municipal zoning by-laws by including an allowance for processing within 90m of the closest residential use, on the basis that the subject residential use is the dwelling on the Harrison property. The 90m setback distance will be met with regards to the closest non-owned residential use.

5.0 AGGREGATE RESOURCES ACT SUMMARY STATEMENT

This section of the Report is structured to address information required under Aggregate Resources of Ontario Provincial Standards' Summary Statement requirements for a Category 3 Licence application.

5.1 Standard 2.1.1 – Planning and Land Use Considerations

The subject lands are located in a rural area of the Township, where agricultural, aggregate extraction, and rural residential uses exist. The most significant natural feature in the area is the Cataraqui River which gives rise to the River Styx Provincially Significant Wetland, which occurs within 120m of the proposed L&D Harrison Pit site. Other wetland features within 120m of the pit site are considered as being significant as it is suggested in the Natural Environment Report that they should be 'complexed' with the larger PSW. Significant wildlife habitat, endangered species, fish habitat and significant woodlands also occur within 120m of the site. The site itself is devoid of significant natural heritage features which is attributable to the over 70 years that the subject lands have been used for farming purposes.

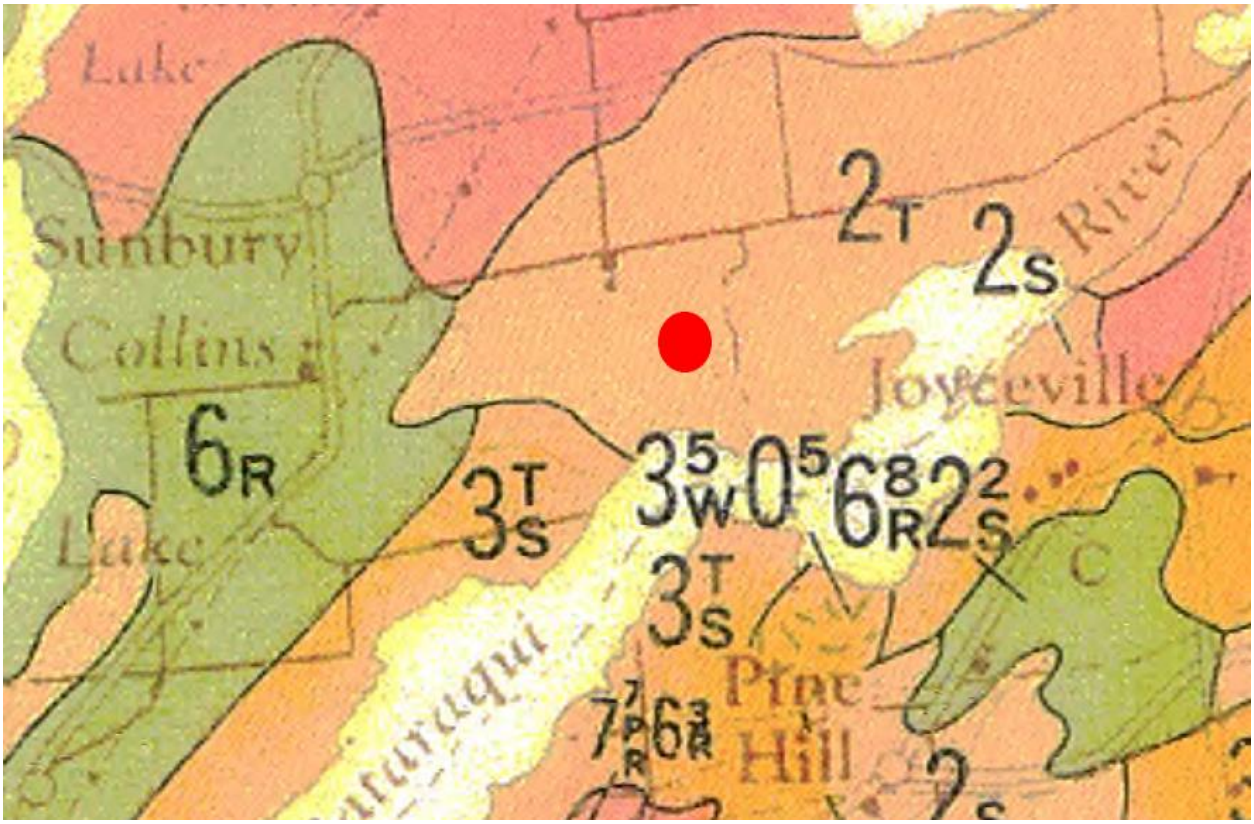
The subject lands are recognized for containing significant sand and gravel resources in a location that is close to market. The sand deposit which will be extracted through the pit operation is designated in the County and Township Official Plan (OP) for its mineral aggregate resource significance, and within which a pit use is permitted. No Official Plan Amendment to either OP is required in order to establish the pit. The subject lands are zoned 'Rural' in the Township's Zoning By-law, thereby necessitating a re-zoning application to permit the pit land use. The County and Township OP's contain policies protecting aggregate resources for future use.

Implementation of technical report recommendations and adherence to standard control and mitigation requirements, as required by the ARA and other Provincial legislation and approvals, will ensure that the proposed pit can operate in accordance with Provincial requirements while minimizing social and environmental impacts. The ARA Site Plan has incorporated the recommendations from the technical reports. The proposed pit is in keeping with the surrounding rural character and landscape, which includes aggregate extraction, farms, and residential uses, and the pit's rehabilitation to an agricultural use is also in keeping with the surrounding area.

Please refer to Section 4.0 of this Report for a further discussion of Planning Policy Review.

5.2 **Standard 2.1.2 – Agricultural Classification**

According to published Canada land Inventory (CLI) Soil Capability for Agriculture mapping, the subject lands (see red circle below) are located on 'Class 2' soils.



The subject lands are designated in the Township Official Plan as 'Mineral Aggregate' and 'Rural'. As per the OP, the 'Agricultural' designation applies to lands considered Provincially significant, that have a high capability to produce food and are generally large blocks of CLI Class 1, 2 and 3 soils.

By virtue of their OP designation, the subject lands are not are within a 'prime agricultural area' with reference to the PPS, County and Township Official Plans. Accordingly, there is no planning policy requirement to return the lands to an agricultural use as part of progressive and final rehabilitation.

However, given the location and expected conditions in areas of the pit that are depleted and rehabilitated, agricultural uses will be the most logical after-use of the site on the pit floor.

5.3 Standard 2.1.3 – Quality and Quantity of Aggregate

The subject lands are located in an area identified in the Aggregate Resources Inventory Paper (ARIP) 187 of Frontenac County as a 'tertiary' level sand and gravel resource area. The ARIP maps only one deposit of appreciable size in the southern part of the County at the 'secondary' level of significance, and it is predominantly under ARA licence or which has been depleted through prior extractive activity. No deposits of 'primary' significance have been mapped in southern Frontenac County. The deposit is mapped in the County of Frontenac Official Plan and in the Township of South Frontenac Official Plan for its mineral aggregate resource and, further, it has been designated accordingly in both OP documents.

Field investigations, including test drilling and test pitting, have been completed by the Applicant on the subject lands to confirm the proposed L&D Harrison Pit area contains sufficient aggregate material in terms of quality and quantity to provide for a viable pit operation. The Applicant has also considered the presence and extraction history of the adjacent Smith Pit to the east which has for the last 40 years, at least, extracted sand and gravel material from the same deposit. On this basis, it is expected that the pit will provide for several types of specialty sand products (eg. hydro, brick, tile/septic and winter sand), as well as sand fill and clay.

The proposed pit is estimated to contain between 3.5 and 4 million tonnes (approximately), based on a volumetric calculation of the extraction envelope if it is extracted to its maximum limits, and depending on how much on-site material will be used in rehabilitation (pit face sloping). The actual amount of aggregate excavated will be less as not all the extractable material will be a viable aggregate resource. Also, given the geology of the Frontenac Arch, there may be locations within the extraction envelope where bedrock is encountered.

On the basis of the typical maximum expected annual production from the pit of 300,000 tonnes, and based on the estimated tonnage range provided above, the pit would be in operation for a range of 12 to 13 years. At the maximum annual production limit of 400,000 tonnes, the operation would last between 9 and 10 years.

Please refer to Section 3.2 of this Report for further information on aggregate resource at the subject site.

5.4 Standard 2.1.4 – Haul Routes and Truck Traffic

The proposed L&D Harrison Pit will be accessed via the existing residential driveway at 2499 Washburn Road, subject to obtaining a Commercial Entrance Permit from the Township, which will be applied for upon issuance of a the ARA pit licence. Trucks will travel on the residential driveway for a short distance, then use a dedicated laneway to the pit site and its entrance/exit at the central portion of the north boundary.

To reach the primary market area of Kingston, trucks will use Battersea Road and Highway 15. These roads will be accessed from the pit using Washburn Road, and other Township roads, eg. Factory Road and Sunbury Road, which will also be used to serve the local market area of the Township to the north and west of the pit site. Factory Road has a form of surface asphalt, and Washburn Road has a 'tar and stone chip' surface. Battersea Road, Sunbury Road and Highway 15 are full-thickness asphalt paved roadways. All roads in South Frontenac are subject to seasonal load restrictions (or 'half-loads') put in place by the Township, generally for the months of March and April.

With the tonnage and haulage parameters described at Section 2.4 of this Report, a mathematical average of ten (10) trucks per hour would ship material from the pit under maximum allowable tonnage condition of 400,000 tonnes. Seven (7) trucks per hour would leave the pit under the expected highest typical condition of 300,000 tonnes annual production. The averages provided above are calculated on the basis of shipping hours described on the site plan, and excludes shipping during the Township's seasonal 'half-loads' restrictions. Lastly, for calculation purposes only, no truck trips have been counted between mid-December and mid-January as shipping during this period will be much lower than the summer months.

Observations indicate that the Township roads are generally lightly travelled. Truck traffic on the local roads has occurred historically from the various pits and a building stone quarry in the area. However, this traffic has diminished in recent years as the local pits have become depleted, and the building stone quarry results in minimal truck traffic given the production nature of that type of operation. Truck traffic is more common on Sunbury Road and Battersea Road, both of which are former County roads now under Township jurisdiction, which connect directly in Kingston with Provincial King's Highway 15 and Highway 401.

In addition to the Commercial Entrance Permit required from the Township for truck use of the driveway entrance onto Washburn Road, the Township will also advise through the ARA and/or Zoning By-law Amendment process with regards to what requirements it may have with regards to the use of Township roads for haulage purposes.

5.5 Standard 2.1.5 – Progressive and Final Rehabilitation

The subject lands are in use for agriculture, which use will continue until any one area is required for aggregate extraction. Areas to be removed from agricultural use for the pit operation, initially by stripping of overburden followed by excavation, processing and stockpiling, will be kept to a minimum. Pit operational activities will occur in discrete areas, in a direction and sequence as depicted generally on the Operational Plan of the ARA site plan. Progressive rehabilitation will occur in a corresponding fashion.

The subject lands are not a 'prime agricultural area' as per the PPS, County and Township Official Plans, and as such there is no Provincial or Municipal planning policy requirement to return the pit to agricultural use through progressive/final rehabilitation. That being said, the most logical after-use of the pit is for agriculture, which is compatible with the current use of the site and expected adjacent/local rural land uses. The type of agricultural activity will depend on the pit floor conditions at the time and the condition of rehabilitation efforts. The floor will be seeded with a legume mix to promote soil development for improved agricultural use.

Excavation faces of the pit will be rehabilitated by backfilling using a combination of non-aggregate material excavated from the site or imported clean fill material. Where possible, subject to quality of the in-situ material, the pit face may be extracted such that it is left in a sloped condition.

Sloped pit faces will be vegetated through seeding with a seed mix formulated for rapid establishment of slopes, and may include flat pea, white clover, annual ryegrass, and tall fescue among others. Trees (seedlings) will also be planted on the slopes, in small clusters, to provide additional diversity. Tree species will be selected based on soil conditions at the time, but are expected to initially include conifers as a nurse crop for hardwood colonization.

The rehabilitated landform will be compatible with the surrounding rural area which dominant land uses are agricultural, extraction and severance-type rural residential. Refer to the ARA Site Plan (Rehabilitation Plan) at Tab 4 of this Report for additional details.

5.6 Standard 2.1.6 – Existing Surface Water and Proposed Discharge

The subject lands do not possess any permanent watercourses or distinct drainage channels. This is typical of the hill-like landform of the sand deposit and its pervious nature. No diversions of or discharges to surface water courses is necessary for the pit operation, including processing, to occur.

Marsh type wetland features occur to the northwest of the site in the form of small pockets which are suggested in the Natural Environment Report to be complexed into the River Styx PSW located to the

south of the site. As detailed in the Report, no impact to these wetland pockets is expected from the pit operation, subject to recommended mitigation measures being implemented. This is identified on the ARA site plan.

The dug pond on the adjacent Smith Pit site to the east is likely connected to a perched water table as a result of occurrences of bedrock and finer grained soils in that area of the Smith Pit, which type of soils also occur in the proximal area of the proposed L&D Harrison Pit. An excavation setback of 30m is in place and identified on the site plan at this location, thereby resulting in a 70m separation distance between the pit excavation and the dug pond. It is also noted that extraction within the Smith Pit has historically occurred within 50 m of the pond, if not less, with no apparent impact on the pond itself.

Water-related works needed for the operation of the proposed wash plant will be designed, located and operated in accordance with approvals received from MECP under the OWRA. A Permit to Take Water (PTTW) will be required to obtain a water source, which will likely be a drilled well. An Environmental Compliance Approval (ECA) will be required to manage water that has been used in the wash plant process. This will be achieved through a system of settling ponds. Such applications are to be made separately, once the L&D Harrison Pit is ARA licensed and excavation operations have sufficiently advanced and a fuller understanding of the aggregate geology is available. Any necessary amendments to the ARA site plan will be made once necessary approvals are received from MECP.

5.7 Standard 2.1.7 – Groundwater Table Elevation

The Hydrogeological Evaluation by Malroz Engineering concluded that the water table in the overburden, i.e. sand and other soils lying above the bedrock, is at 92.5 m asl or below. This was determined through a program of groundwater monitoring using drilled boreholes, a test pit program at the adjacent Smith Pit, and drone survey. An area of higher groundwater, described as a perched water table, was also found at the southeast portion of the site, in an area of finer grained soils and where the dug pond in the Smith Pit is located. Malroz recommend a 30m excavation setback in this area to address the perched water table.

Malroz also recommend a pit floor elevation of 94.5 m asl for the proposed L&D Harrison Pit, which is 2.0 m above the established groundwater table elevation of 92.5 m asl as identified during the evaluation.

Malroz found that a groundwater table also exists within the bedrock which underlies the sand deposit at the site, and it is this groundwater which supplies all but one of the local domestic supply wells in the area which are not on the Harrison property, as reported through the Provincial water well database.

Further information on the elevation of the water table is provided in the Hydrogeological Evaluation prepared by Malroz Engineering, located at Tab 1 of this Report.

6.0 CONCLUSIONS

The subject lands for the proposed L&D Harrison Pit are in a rural area, where agriculture, aggregate extraction and rural residential uses co-exist. The local area is also notable for important natural heritage features, primary of which is the River Styx Provincially Significant Wetland, which is associated with the Cataraqui River and Rideau Canal Corridor.

The deposit proposed to be excavated has been mapped in two Provincial geological publications as containing significant sand and gravel resources. This has resulted in the subject deposit being mapped in the County Official Plan as 'Sand and Gravel Resource' and designated as 'Resource Lands (Mineral Aggregate)', and mapped/designated as 'Mineral Aggregate' in the Township Official Plan. Site specific investigations by the Applicant have verified the presence of a viable aggregate resource located above the water table.

The operational design of the pit incorporates the recommendations of the technical reports prepared for the application in order that the pit can operate within Provincial guidelines and minimize social and environmental impacts.

The proposed L&D Harrison Pit represents the wise use and management of significant aggregate resources and is in the public interest. The proposal is consistent with the PPS, and conforms to the Official Plans for Frontenac County and the Township of South Frontenac.

Respectfully submitted,

MHBC Planning

ORIGINAL SIGNED BY

Amarjit S. Sandhu, BSc.

January 17, 2020

Date