Design & Operations Report

Soil Bank and Hydrovac Soil Processing Facility
County Road 4, Peterborough, Ontario

Leahy Excavations Inc.

April 8, 2024

Contents

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1. Introduction

GHD Limited (GHD) has prepared this Design and Operations (D&O) Report, on behalf of Leahy Excavation Inc. herein referred to as “Leahy”, Owner/Operator. The D&O Report supports an application for an Environmental Compliance Approval (ECA) to be submitted to the Ontario Ministry of the Environment Conservation and Parks (MECP) for a soils bank and hydro-vac slurry receiving operation at the lands identified on Part Lot 3, Concession 9 in the Township of Douro-Dummer in Peterborough, Ontario (Site or Property). The Site location is shown on **Figure 1**.

It is understood that historically the Site was used as a wayside pit for construction of County Road 4 in the early to mid-1900’s. Currently, the Site is used to receive topsoil, green landscape waste and other soils excavated from construction projects as well as asphalt and concrete material. The topsoil is stockpiled, screened, and reused offsite. Granular materials are stockpiled, screened, and reused offsite or are used onsite for backfilling of the wayside pit area. Non-granular materials, generally described as higher in silt and clay content, are used for backfilling the wayside pit area. This soil is initially stockpiled in various locations on the east portion of the Site. Asphalt and concrete are crushed and sorted into piles and sold as recycled products. Green landscape waste is stockpiled and is either shipped back out as is or is mulch/chipped and sold.

The Site also receives hydro-vac trucks with slurry material collected primarily from daylighting of underground utilities. The slurry from the hydro-vac trucks is deposited in the receiving pond where settling of the material occurs. The receiving pond has been constructed out of fine-grained soils. Water from the slurry generally evaporates with minimal infiltration into the ground. The pond is dredged on an approximate weekly basis, and the material is stockpiled and dried on the north side of the pond. A Site layout is shown on **Figure 2**.

This D&O Report provides detailed descriptions of Site operations to be governed by the ECA and demonstrates compliance with Ontario Regulation (O. Reg.) 406/19 (On-Site and Excess Soil Management) and Rules for Soil Management and Excess Soil Quality Standards (Soil Rules) consistent with MECP policies and practice for excess soil reuse and hydrovac site requirements.

Leahy and GHD have pre-consulted with the MECP District Office, and the D&O Report incorporates information that was requested during these discussions. A Hydrogeological Assessment, dated October 5, 2023, was completed by GHD in support of the ECA.

1.1 Scope and Limitations

This report: has been prepared by GHD for Leahy Excavations Inc. and may only be used and relied on by Leahy Excavations Inc. for the purpose agreed between GHD and Leahy Excavations Inc. as set out in Section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Leahy Excavations Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

2. Facility Design

2.1 Location and Land Use

The Site is legally described as Part of Lot 3 Concession 9 Douro as in R377087, except Parts 1 & 2 PL 45R8200, except Part 1 PL 45R15813, in the Township of Duoro-Dummer, Peterborough County. A copy of the Proposed Site Plan is provided in **Appendix A**.

The Site is located on the south side of County Road 4 within the Township of Douro-Dummer. As shown on **Figure 1**, the Site is located in a rural-residential / agricultural area approximately 5 kilometres east of Peterborough. The area is privately serviced for water and sewage. Meade Creek and a tributary of Meade Creek traverse the Site in a southerly direction. Meade Creek is a tributary of the Otonabee River.

The Property is currently zoned Special District 194 (S.D. 194), and it is understood that the Client has applied for a zoning change to Extractive Industrial Zone (M2). A waste processing facility will be a permitted use in the new zoning. A figure showing the area zoning and pre-consultation meeting notes with the Douro-Dummer Township, County of Peterborough, MECP, and Otonabee Conservation Authority (ORCA) providing confirmation the application for a soil reuse and hydrovac operations at the Site, are provided in **Appendix B**.

The Site is irregular in shape covering an area of approximately 35.7 hectares (88.2 acres) with access via a gravel lane from County Road 4. The east side of the Site is designated as an Environmental Conservation Zone (EC) where Meade Creek is situated. Within the western portion of the Site is the tributary of Meade Creek. An earth berm has been constructed along the edge of the operational area and the EC zone. There are numerous stockpiles, internal roadways and lay down areas on the Site. A portable structure is present on the Site that is used as an office. The hydro-vac operations are limited to the receiving pond at this time. The Site was historically used as a wayside / gravel pit, which was excavated to the underlying glacial till and the granular material was sold.

Based upon observations during a Site visit, the surrounding land use includes:

– Agricultural lands; rural residential lands; an EC area; County Road 4 right-of-way and a gravel extraction pit

The Site is located within the Otonabee River Watershed under the jurisdiction of the ORCA. The Site is located outside of any wellhead protection areas based on the MECP Source Protection Information Atlas.

Existing ground surface elevations and contours are shown in **Figure 3**.

2.2 Hydrogeological Assessment

As requested by the MECP a Hydrogeological Assessment (HA) was developed with MECP input and then completed from September and October 2023. The HA evaluated hydrogeological conditions around the Site and potential impacts to groundwater from Site operations. A copy of the HA was provided to the MECP under separate cover, and reviewed by Mr. Eric Martin (MECP Hydrogeologist, Technical Support Section- Water Resources Unit, Eastern Region) and Mr. Dana Cruikshank (MECP Surface Water Specialist, Water Resources Unit, Eastern Region). MECP Memorandums provided in **Appendix C**.

2.3 Operating Hours

The Site will typically operate from 7 am to 6 pm Monday to Friday with trucks leaving in the morning and returning in the afternoon to unload. Some trucks will make multiple trips to/from the Site during the day. The Site also occasionally provides hydrovac services outside typical operating hours (e.g., after hours and weekends). The Site will typically operate for the whole year.

Soil and hydrovac trucks enter and exit the Site via the entrance at County Road 4. Hydrovac trucks are operated by other companies separate from Leahy Excavations Inc. Typically 1-2 hydrovac's or trucks would be present on the site sporadically throughout the day with up to five (5) at once.

The Property is entirely fenced with lockable gates at entrance. Unauthorized access to the Property is not expected to be a significant concern.

2.4 Service Area / Waste Accepted

The soil and hydrovac trucks accepted at the site collect materials typically within Peterborough County and occasionally surrounding municipalities/counites where excess soil for developments and liquid soil is collected from utility, municipal and commercial sites to ensure that utility strikes and damage do not occur during intrusive work (e.g., daylighting for utility work and roadwork).

No hydrovac materials or excess soil will be accepted from sites with known or potential environmental concerns or other sites with known soil impacts. Hydrovac truck loads that may be impacted with contaminants (e.g., petroleum hydrocarbons as determined by Site information, visual inspection, and odours) are not accepted.

The Property is entirely fenced with lockable gates at entrance. Unauthorized access to the Property is not expected to be a significant concern.

2.5 Storm Water Management

The Site is generally flat and stormwater runoff is by sheet flow overland towards low-lying areas at the south of the Site. Some infiltration into soils is expected. There are no direct point source off-site stormwater discharges. The Site is mostly open soil ground cover with vegetated/forested areas present along the Property boundaries. Yard inspections and maintenance are conducted daily as needed to keep outside areas clean and minimize potential impacts to storm water. Water which drains from the soil dewatering area also is managed through the Site stormwater management features.

2.6 Air, Noise, and Dust

Buildings on the Property have electric heating and cooling. Exhaust from trucks, earth moving equipment, and employee vehicles are the only air and noise emission sources. Extended vehicle idling, air brakes, and excessive engine noise are prohibited.

A berm is to be constructed on the north end of the Site which will mitigate noise or dust emissions.

Nuisance dust emissions may occur due to on-site traffic on unpaved areas, from stockpiles, and soil processing areas. Potential factors that may lead to dust emissions include soil type, moisture content, material size, vehicle speed and wind speed. Dust control measures such as watering of unpaved areas, altering stockpile orientation in relation to prevalent wind directions and a low onsite speed limit will be implemented as required to manage dust.

3. Soil Management Plan

3.1 Receiving

Excess soils from construction sites and hydro-vac materials are received at the site. Excess soils are typically dry soils consisting of fine grained to granular materials and are free of debris. Both a dry soils dump truck and a hydrovac truck have a typical maximum capacity of 10,000 kilograms (kg) or 10 metric tonnes (MT). Material in a hydrovac truck is typically comprised of 60 percent water and 40 percent soil, therefore, one vac truck on average will contain 4 MT of soil per trip.

Site receives a maximum of 250 MT of liquid soil per day which is typically comprised of 150 MT of water and 100 MT of soil. All liquid soil is unloaded for dewatering and drying in the designated areas.

In addition, the Site receives landscape green waste. This waste is stockpiled on the ground and either shipped off-site unaltered or chipped and mulched on-site then sold for use off-site.

3.2 Processing

Soil is processed in the following steps:

– Dry excess soil is to be stockpiled on Site, within designated locations.
  - Stockpiled soils are sorted based on grainsize distribution for use on-site as pit restoration or taken off-site as granular products.
– Hydrovac trucks back up onto sloped offloading ramp in order to empty liquid soil into settling pond.
– Excess water from the settling pit will evaporate, no significant discharge to the ground will occur.
– Once excess water has been evaporated from the soil, it is dredged and stockpiled to be dewatered.
– Once the soil has dried, the stockpiled soil is sampled, and the samples submitted for laboratory analysis.

Soil stockpiles are limited to heights which are not a visual nuisance to surrounding property owners or structurally unstable. Stockpiles remain in place until soil sampling has been completed and analytical laboratory results are received. On-site stockpiling of soil will follow the general guidelines outlined in the Soil Rules document. There are three types of soil stockpiles present at any one time:

1. Un-sampled stockpiles
2. Sampled stockpiles, analytical data not yet received
3. Sampled stockpiles, analytical data received

3.3 Soil Characterization

Stockpile soil sampling will be conducted to characterize soil quality. Soil samples will be submitted to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory for the follow parameter analyses:

– Metals and Hydride Forming Metals
– Volatile Organic Compounds (VOCs)
– Petroleum Hydrocarbons (PHCs F1 to F4)
– Polycyclic Aromatic Hydrocarbons (PAHs)
– Sodium adsorption ratio (SAR) and electrical conductivity (EC)

Soil stockpiles are sampled at the frequency provided in O. Reg. 153/04 Table 2 Minimum Stockpile Sampling Frequency. The Soil Rules document also provides guidance on the number of samples to be collected per the size of the stockpile and appropriate laboratory analysis for soil characterization. The soil stockpile sampling frequency is as follows:

Table 1 Stockpile Soil Sampling (from Table 2 – Schedule E of O. Reg. 153/04)

Item	Stockpile Volume (m3)	Minimum Number of Samples
1.	≤ 130	3
2.	> 130 to 220	4
3.	> 220 to 320	5

The soil analytical data is evaluated by comparing the analytical results to MECP Table 1 Standards. Typically, the soil meets Table 1 Standards and can be used for:

- Rehabilitation activities of the former and active extraction areas of the pit
- An aggregate product (either stand-alone or from blending with hydrovac soil or Site soil)
- Berm construction around the aggregate pit area which is beneficial in mitigating potential off-site impacts and providing a visual screening of the operation.

Soil that is determined to be managed off-site in accordance with O Reg 406/19. Any dry soil that meets all criteria in subsection 3(2) of O. Reg. 406/19 would be excess soil and would not be designated as waste. A copy of the analytical data will be provided to the receiving site and their written permission to accept the soil received prior to transporting the soil. Off-site soil transportation will be documented by a Bill of Lading system. In the very unlikely event that any soil is determined to be hazardous waste in accordance with O. Reg. 347 (General Waste Management) then the appropriate disposal documentation (i.e., manifesting under the Resource Productivity and Recovery Authority's (RPRA) Hazardous Waste Program (HWP)] will be generated. For any excess soil leaving the property, all requirements of O. Reg. 406/19 will be met.

3.4 Risk Screening

Risk screening may be considered for soil that has one or more parameter concentrations above MECP Table 1 Standards. The objective of risk screening is to assess the potential human health and ecological risks associated with exposure to elevated parameter concentrations for the specific conditions at the Site or another property. The results of the risk screening will be used to manage the potential for resale of stockpiled soil material to ensure that exposure to the material does not result in any unacceptable risk for the human and ecological receptors that are or may be present at the Site or other property. The risk screening may include the identification of contaminant of concerns (COCs), an exposure pathway analysis, and the selection/development of risk-based component values (RBCVs) protective of human health and the environment consistent with the general methodology under O. Reg. 153/04. The risk screening is not a formal, comprehensive Risk Assessment that would undergo MECP technical review under O. Reg. 153/04.

3.5 Soil Tracking

Accurate records of the quantity of material received from sites and the material quality based on sampling results are documented using Tracking Record forms and/or electric database (**Appendix D**). Records include information regarding material source, hauling quantity, soil tracking, analyses, and final disposition.

All applications and related reports, bills of lading, logs of material accepted at the site, records of material approved for acceptance at the site, etc. will be retained at the Site or in records storage.

4. Water Management Plan

4.1 Surface Water Drainage

The overall surface water drainage at the site is towards Meade Creek. However, with excavation in the pit area, it has caused a low-lying area, where water is now draining to. The water in this area infiltrates into the ground and follows the shallow water table. There will be no discharge of water from the hydrovac soils at the Site.

Some evaporation and infiltration to the underlying soils occurs in the surface water drainage system. There are no off-site discharge structures from the surface water drainage system. The perimeter topography and the stockpile and area grading is such that all areas direct overland flow towards the Site interior.

4.2 Surface Water Monitoring and Inspection

4.2.1 Surface Water Characterization

Surface water sampling will be conducted quarterly to characterize water quality in the upgradient of the Site (Creek #1) and downgradient of the Site (Creek #2). Surface water samples will be submitted to an accredited laboratory for the follow parameter analyses:

– O. Reg. 153/04 Metals and Inorganics
– VOCs
– PHCs F1 to F4
– Total Suspended Solids (TSS) and turbidity

Surface water data is compared to the Provincial Water Quality Objectives (PWQOs). The results of the surface water monitoring program are included in the annual report noted in Section 5.5.

4.2.2 Surface Water Records

Surface water records are not required as no water is being discharged to the Site from the hydrovac soils.

4.2.3 Surface Water Inspections

Regular inspections of the surface water management areas are required to ensure proper operations and identify maintenance activities that may be required. Weekly inspections of Meade Creek (Creek #1 and Creek #2) will be documented on an inspection form (**Appendix E**). Any maintenance activities will also be documented on the inspection form.

Site grading should be reviewed by Site personnel regularly to ensure that water continues to drain into the pit area. If any discharge occurs directly to the Creek, the Creek should be monitored to ensure quality has not been impacted. Berms should be kept in good condition to maintain drainage, minimize erosion, and limit break-outs to Meade Creek .

4.3 Groundwater Monitoring

In accordance with the MECP comments on the HA, quarterly groundwater hydraulic and water quality of the selected two Site monitoring wells (MW2-22 and MW6-22) is conducted. The groundwater monitoring program will consist of a groundwater level measurements and sampling for the following list of analysis:

– O. Reg. 153/04 Metals and Inorganics
– VOCs
– PHCs F1 to F4

Groundwater hydraulic monitoring are evaluated, and sampling data are compared to MECP Table 8 Standards. The results of the groundwater monitoring program are included in the annual report noted in Section 5.5.

5. Other Operations

5.1 Inspection and Maintenance

Daily visual observations will be conducted of the following areas to ensure the Site is secure and that there are not off-site impacts such as dust, litter, noise, vermin, vectors, odour, and traffic:

a. Access road
b. Loading/unloading area(s)
c. Storage area(s)
d. Security features

The Site features, site conditions, and operations will be formally inspected and documented on a weekly basis to ensure that these are maintained in good working order and secure. Deficiencies detected during these regular documented inspections will be promptly corrected. A written record of the inspections will be maintained at the Site, including (as a minimum) the following (**Appendix E**):

a. The name, title, and signature of trained personnel conducting the inspection
b. The date and time of the inspection
c. A list of all equipment and Site features inspected and deficiencies observed
d. Recommendations for remedial action to be undertaken

5.2 Staff Training

Onsite staff are trained in safety, site operations and responsibilities for receiving materials.

Operators and staff are trained with respect to the following as appropriate for their job function:

a. The D&O Report and ECA requirements.
b. Site operation and management.
c. Checking loads for unacceptable wastes during operations .
d. The Site plan and location of relevant equipment, including that for emergencies and spills.
e. An outline of the responsibilities of Site personnel including roles and responsibilities during emergencies and spills.
f. Spill Prevention, Control, and Environmental Emergency and Contingency (E2C) Plan (See Section 5.3).
g. Any environmental and occupational health and safety concerns pertaining to the waste to be processed.
h. Procedures for the control of nuisance conditions.
i. Emergency first aid information.
j. Relevant waste management legislation and regulations, including the Environmental Protection Act (EPA) and Ontario Regulation 347.
k. Ontario Regulation 406/19 – Excess Soil Regulations
l. Information recording procedures.
m. Site Inspection procedures.
n. Procedures for recording and responding to public complaints.

A written record will be maintained, which will include (as a minimum) the following (**Appendix F**):

– The date of training
– The name and signature of the person who has been trained

– A description of the training provided

Senior staff members supervising operations will have all of the above noted training as well as any other training required by the Applicant or the Province of Ontario.

5.3 Environmental Emergency and Contingency Plan

The Environmental Emergency and Contingency Plan (E2C) outlines the prevention of, preparedness for, response to, and recovery from an environmental emergency. The E2C Plan is described in **Appendix G** and includes the following elements:

– Emergency Contact Numbers
– Spills
– Fire
– Severe Storms
– Medical Emergencies

A copy of the E2C will be provided to the local municipality and the local fire department as required.

5.4 Complaint Procedure

The Applicant will maintain a record at the Site containing detailed complaint and follow up information listed in the template form provided in **Appendix H**.

The records will be retained for five years at the Site.

5.5 Annual Monitoring and Report

Following the end of the calendar year and as required by the ECA (Waste Disposal Site), an annual report will be prepared and submitted to the District Manager covering the previous calendar year. The report will include the following information:

– A monthly summary of the type and quantity of material transported to the Site.
– A monthly summary of the type and quantity of wastes transported from the Site.
– A summary of the quarterly groundwater monitoring program and sample results.
– A summary of the quarterly surface water monitoring program and sample results
– Any environmental and operational problems that could negatively impact the environment, encountered during the operation of the Site and during the weekly inspections, and actions taken to mitigate potential impacts.
– Actions taken to further minimize potential environmental impacts from the operation and to improve operations and monitoring programs
– A statement certifying compliance with ECA Conditions.

5.6 Disruption of Shipment or Facility Operations

If hydrovac operations are halted, then hydrovac vehicles will be diverted to other appropriate temporary storage or disposal locations. At no time will the approved storage limit be exceeded, and reasonable efforts will be made to clear the offloading/stockpile area in a timely fashion.

5.7 Closure Plan

Should the Site no longer be used as a waste processing facility, the Site will be decommissioned. The decommissioning procedure is as follows:

- Soil stockpiled will be spread or reused on site if it meets MECP Table 1 Standards (typically more than 95% of soil) or is aggregate material. If soil does not meet MECP Table 1 Standards, then it may be sold/beneficially reused on other properties.
- Soil that cannot be sold for beneficial reuse and waste will be shipped to a permitted treatment/disposal facility.
- All equipment will be removed from the Site.
- The building and exterior areas of the Site will be cleaned of any litter.

The decommissioning activities will be documented, and a decommissioning report submitted to the District Office.

We trust this report meets your immediate needs. Should any questions arise regarding any aspect of our report, please contact our office.

Sincerely,

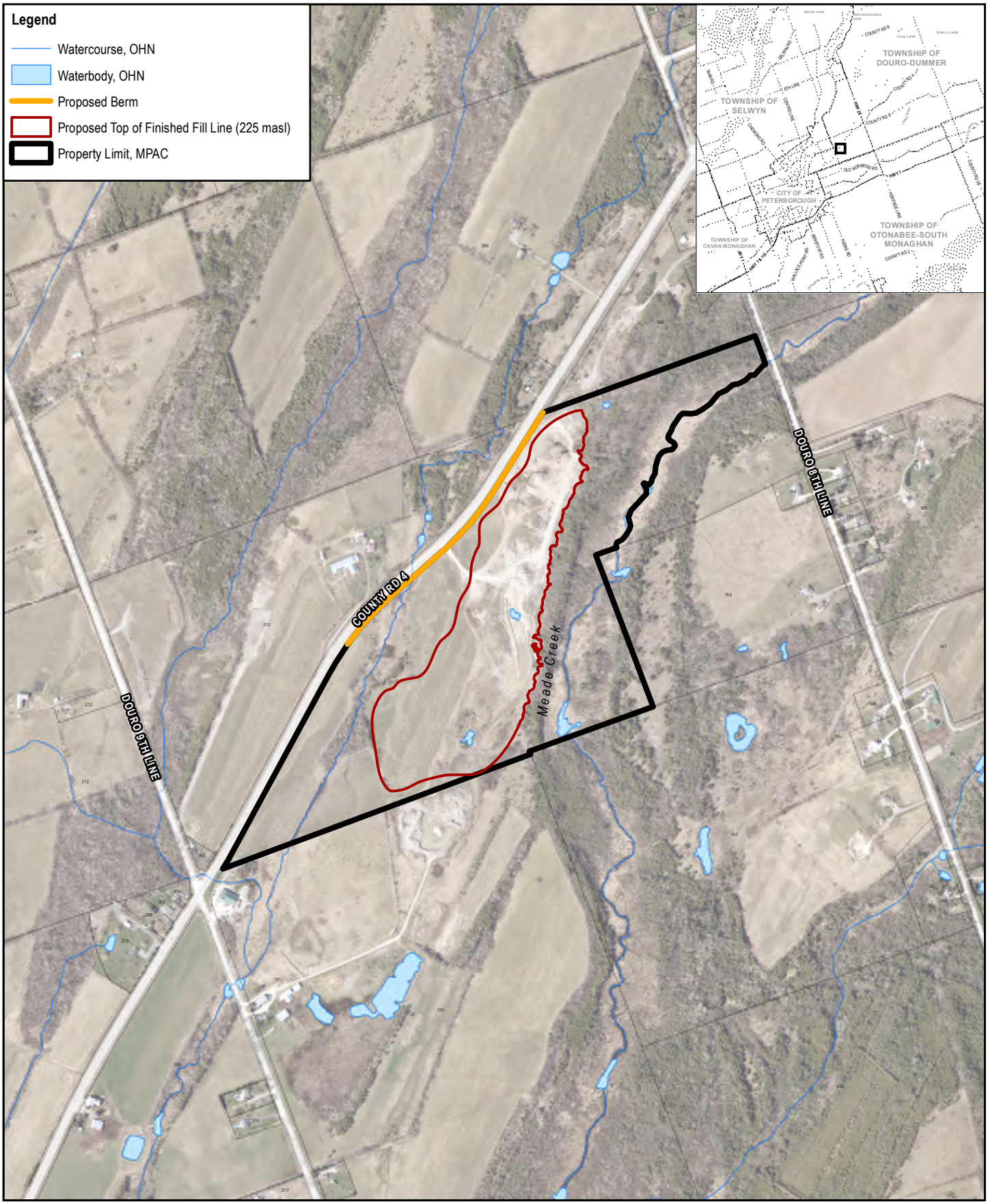
GHD Limited

Lisa Gardiner, B.Sc., A.Sc.T., PMP

Wesley Moore, P.Eng.

Steven Gagne, H.B.Sc.

Figures



1 cm = 100 meters

0 100 200 300

Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

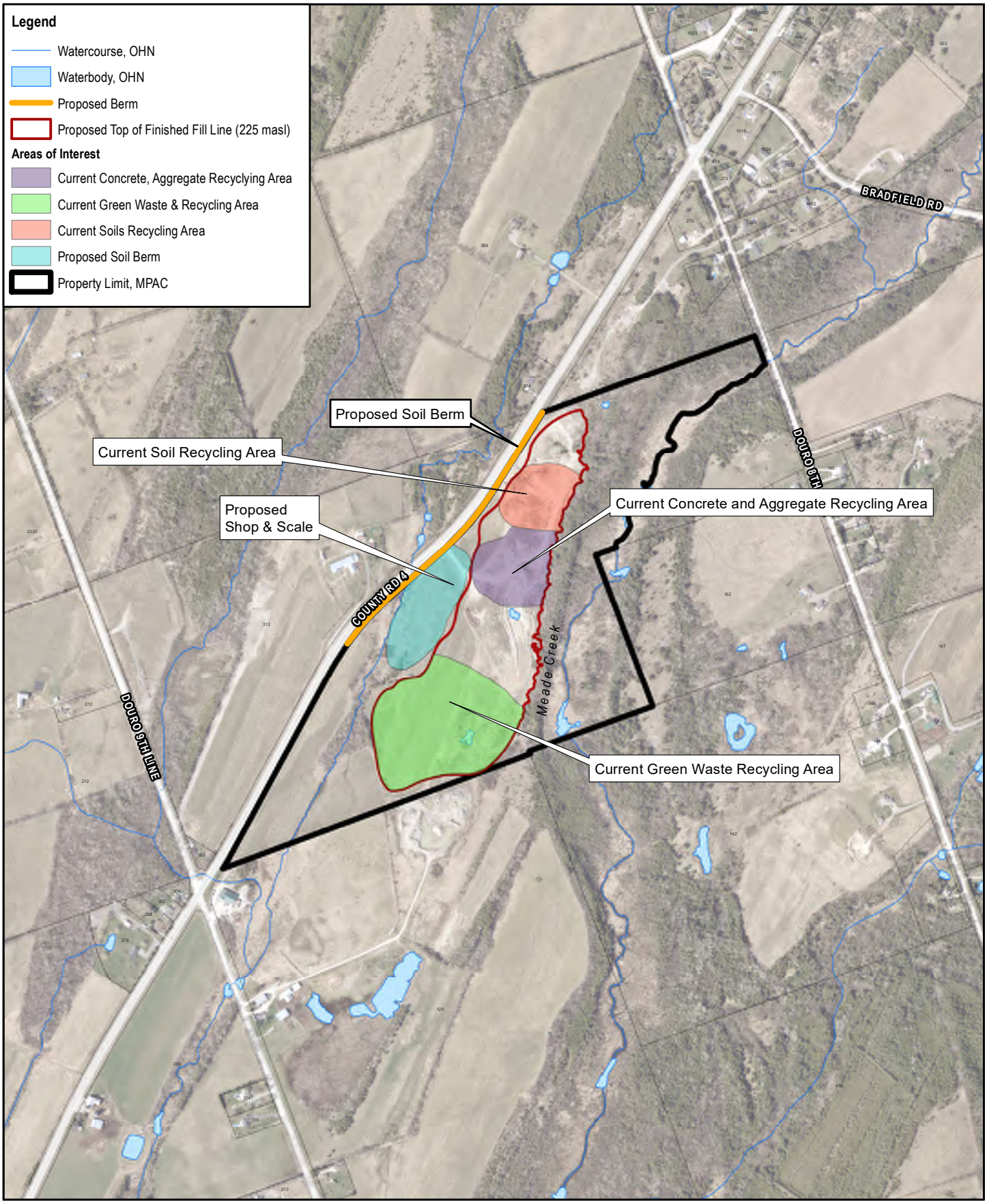
Leahy Excavations Inc.
County Road 4, Douro, ON
Pt Lot 3, Con 9, Douro Township
Township of Douro-Dummer
County of Peterborough

Design & Operations

Site Location Plan

Project No. 12583956
Revision No.
Date Mar 4, 2024

Figure 1



1 cm = 100 meters

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

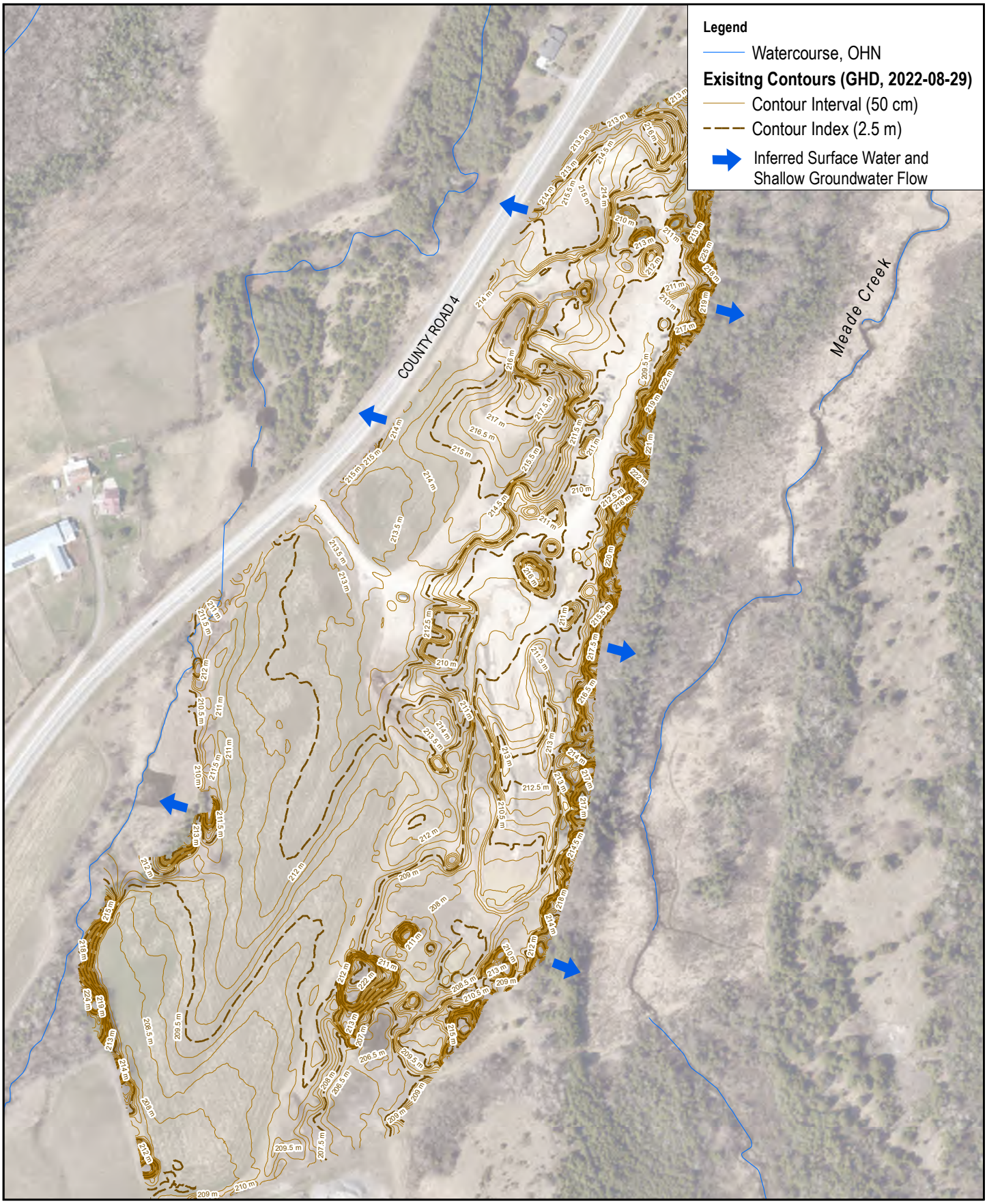
Leahy Excavations Inc.
County Road 4, Douro, ON
Pt Lot 3, Con 9, Douro Township
Township of Douro-Dummer
County of Peterborough

Design & Operations

Site Plan Layout

Project No. 12583956
Revision No.
Date Mar 4, 2024

Figure 2



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Metres

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GHD

Leahy Excavations Inc.
County Road 4, Douro, ON
Pt Lot 3, Con 9, Douro Township
Township of Douro-Dummer
County of Peterborough

Design & Operations

Existing Contours

Project No. 12583956
Revision No.
Date Mar 4, 2024

Figure 3

Appendices

Appendix A

Proposed Site Plan

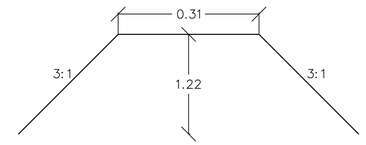
SITE STATISTICS

CURRENT ZONING: SPECIAL DISTRICT 194 (S.D.-194)

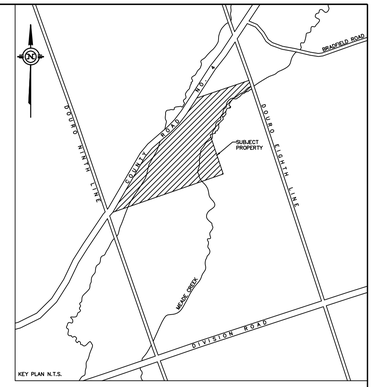
	PERMITTED	EXISTING
MIN. LOT AREA	400000m² (40ha)	359168.6m² (35.92ha)
MIN. LOT FRONTAGE	180m	1081.3m

PROPSOED ZONING: EXTRACTIVE INDUSTRIAL (M2)

	PERMITTED	PROPOSED
MIN. FRONT YARD	30m	51.2m
MIN. SIDE YARD	15m	340.4m
MIN. REAR YARD	15m	260.9m
MIN. WATER YARD	30m	219.4m
MAX. PIT AREA	80000m² (8ha)	2060m² (0.21ha)



BERM DETAIL
N.T.S.



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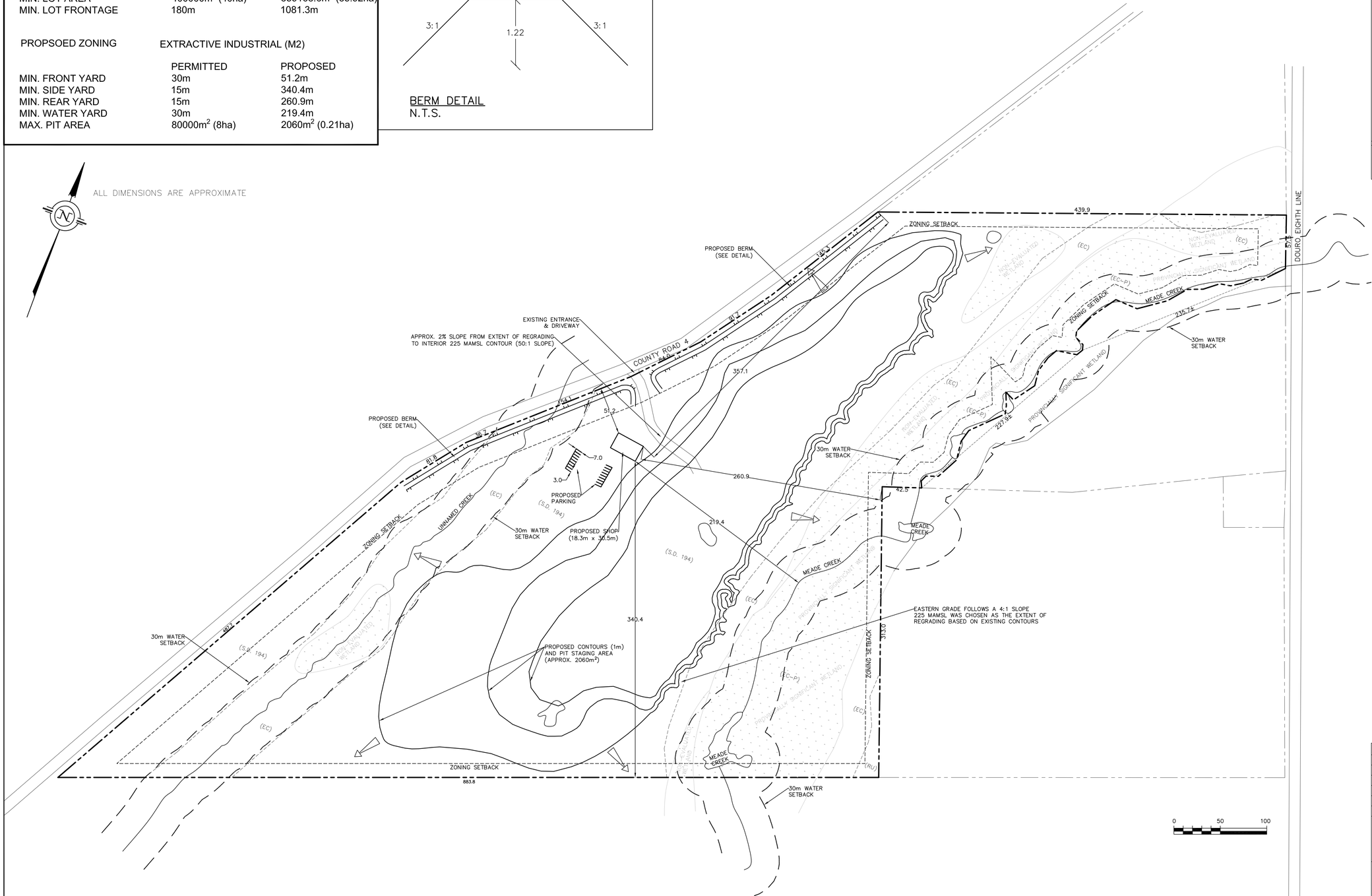


LEGEND

MAJOR FLOW ROUTE

Nº:	DATE	DESCRIPTION	BY

REVISIONS

PROJECT TITLE:

LEAHY PIT - ROLL #1522010004048000
PT LOT 3, CON 9, DOURO TOWNSHIP
COUNTY OF PETERBOROUGH

DRAWING TITLE:

PROPOSED SITE PLAN

TD Consulting INC.
155 St David St
Lindsay, Ontario
K9V 4Z6
Phone : (647)-535-9461
e-mail : info@td-consulting.ca

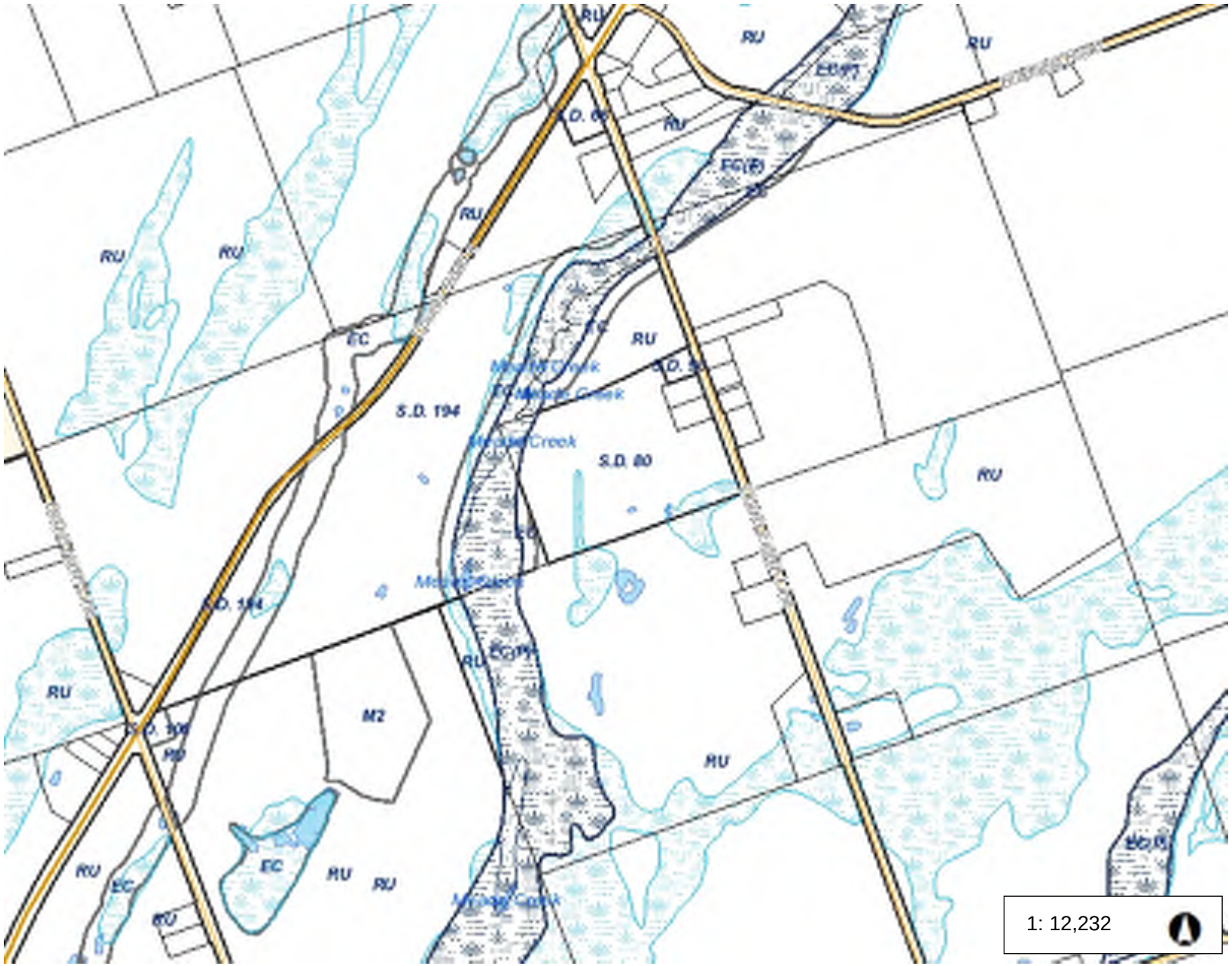
DRAWN BY: KM	PROJECT Nº: 022-769
DESIGNED BY: TD	
APPROVED BY: TD	DRAWING Nº: SP-1
DATE: JAN 2023	SCALE: AS SHOWN

LAST REVISED JAN 17-2024

Appendix B

Zoning Map and Pre-Consultation Meeting Minutes

County of Peterborough Zoning



Legend

Roads < 50,000

- PRIV ; Private; PRIV
- City Arterial
- City Collector and Local
- City Owned Unclassified
- Provincial
- County
- Township
- Water Access Only

Outside Roads < 50,000

- Major Roads
- Local Roads

- Parcel Fabric
- Parcel First Nations - Canada
- Clean Water Act Policies Apply
- Provincially Significant Wetland
- Locally Significant Wetlands
- Non-evaluated Wetlands
- DD Zoning Bylaws
- Lakes - Local Scale
- Municipal Boundary - Upper Ti
  - <all other values>
  - COUNTY OF PETERBOROUGH

1: 12,232

Notes

621.4 0 310.70 621.4 Meters

NAD83_CSRS98_UTM_zone_17N

Notes from Pre-consultation Meeting

Property:	317 County Road 4
Zoning:	Special District 79 (S.D. 194), Environmental Conservation (EC), and Environmental Conservation Provincially Significant Wetland (EC(P))
Official Plan Designation:	Rural, Extractive Industrial, Industrial and Provincially Significant Wetland
Meeting Date:	March 22, 2023
In attendance:	Planner - Christina Coulter Temporary CBO – Don Helleman Building Administrator – Leisha Newton MECP - Gary Muloin, Jon Orpana, Dana Cruikshank ORCA – Don Allin Peterborough County – Ken Scullion, Planner Peterborough County – Daniel Ilkiewicz, Engineering Agent – Tom deBoer, TD Consulting Owners/Applicant – Paul Leahy, Evan Leahy

Comments:

Background: The property is currently being used as a materials processing and recycling facility. Vac slurry, aggregates, topsoil and green waste are imported and turned into soil to be reused. "End of life" clean fill is imported with the intent of returning the site to useable farm land. Owners are currently working with GHD and MECP.

Proposal: To rezone the subject property from the Special District 194 Zone (S.D. 194) to the Extractive Industrial Zone (M2) to recognize the existing uses of the property (i.e. a wayside pit for lack of a better phrase) and to construct a 60 x 100 foot (18.3 x 30.5 m) structure for the purpose of storing construction and farm equipment.

Proponent confirmed proposed maximum pit area of 0.21 hectares is the existing pit which will be filled with the end of life material.

The proponent indicated they may wish to have a detached office building in the same location as the proposed shop at some time in the future. The proponent inquired if a building permit would be required for weigh scales at the entrance, minimum of 45 m from the road. The CBO indicated that more information is required. The ZBL must be met even if a permit is not required. If there is a scale house associated with the scales, then a permit would be required, this would include a site trailer. Please provide

more information to the CBO showing location and drawings of the scales and any associated structures.

Please show all proposed uses on the site plan now so they can be planned for in these applications.

As indicated in the pre-consultation form, the property will be used as a staging site (excess soils bank) and a pit for vac trucks and store asphalt/concrete/granular to sell and use off site. Site is currently being used as a soil screen and sorting area. Will no longer be used for extraction, purely as an excess soils bank to store soil form other locations where it will be screened and sorted. No retail from the site is proposed.

Planning and Building:
OPA, ZBA & Site Plan Approval applications required. In order to meet prescribed timeframes, submission of concurrent applications will not be accepted. OPA application to be submitted first to the County of Peterborough. Once OPA approval received, then ZBA to Township. SPA to Township once ZBA approval received.

A civic address was recommended and this was issued after the meeting.

Note: Where planning applications are required, a 'complete' application will include all technical reports/studies identified through the pre-con undertaken by a qualified professional and the corresponding reviews by the appropriate authority, agency and/or peer reviewers. Both the cost of the study and the peer review will be at the applicant's expense.

Township Zoning By-law:
Special District 194 (S.D. 194) (S. 21.194), Environmental Conservation (EC) and Environmental Conservation Provincially Significant Wetland (EC(P)) (S. 19).

Zoning By-Law Amendment (ZBA) required. Proposed uses are not permitted within the (S.D. 194), (EC) or (EC(P)) Zones. The uses are generally permitted within the Extractive Industrial (M2) Zone (S. 15), although a site-specific amendment is required since proposed uses do not appear to meet existing by-law i.e. pit or wayside pit (Ss. 22.169 & 22.252), nor do ancillary structures appear to be permitted or regulated. Site should be designed in accordance with Section 15.2, 15.3, & 15.4 of the By-law as well as 3.43 & 3.44.

Consider any and all uses proposed for the site when drafting the By-law.

ZBA to specify County Road 4 will be the front lot line and Douro Eighth Line is deemed the exterior side lot line. Results of EIS will inform an adjustments to (EC) and (EC(P)) Zone boundaries.

Official Plan:
Designated Rural, Extractive Industrial, Industrial and Provincially Significant Wetland on Schedule 'A4-1'.

Rural - Section 6.2.2 – proposed use not permitted (6.2.2.2 & 6.2.2.6). OPA required.

Extractive Industrial – Section 6.2.13
All expended aggregate pits and quarries shall be rehabilitated (S. 6.2.13.2).

Extractive industries may refine and further process the raw materials extracted from the site in order to produce semi-finished or finished goods provided that the majority of the raw materials used in the final product comes from that site. Product is not coming from the site.

Generally, only licensed pit and quarry operations shall be zoned for extraction in the implementing Zoning By-law (S. 6.2.13.3 (c)).

MCR not required to remove Extractive Industrial designation (S. 6.2.13.3 (j)):
j) In circumstances where the aggregate resource in an Extractive Industrial designation has been depleted and the license has been surrendered, an official plan amendment may be approved to redesignate the lands to Rural or Agriculture or other suitable designation without the requirement of a municipal comprehensive review.

Industrial – Section 6.2.12 proposed use not explicitly permitted (6.2.12.2).

Proposal should have regard for Section 6.2.12.3.

The Township may require a preliminary site plan as support to an application for a Zoning By-law Amendment. This site plan shall be reviewed by the Township, and all relevant agencies to determine suitability of access, compatibility with surrounding land uses, and the impact that the proposal may have on surrounding septic systems, groundwater or natural habitat. (S. 6.2.12.3 (p)).

Provincially Significant Wetlands – Section 6.2.16

Development and site alteration shall not be permitted within Provincially Significant Wetlands (S. 6.2.16.2).

EIS required for any development or site alteration within 120 m (S. 6.2.16.3 (d)). EIS to be undertaken in accordance with S. 4.1.3.1 (S. 6.2.16.3 (f)).

PJR must have regard for and speak to Sections 7.9 and 7.14 – Criteria for assessing OPA's and Criteria for assessing industrial development.

7.17 Site Plan Control applies (3.3 of SPC By-law). Copy of By-law, Guide and Application attached.

County Official Plan Component: (S. 4.1.3.3):
In areas of significant mineral aggregate and non-aggregate resource potential, as identified by the Ministry of Natural Resources, the Ministry of Northern Development and Mines, private landholders or the development industry in consultation with the local municipalities, uses which do not preclude future access to and extraction of these potential resources may be permitted. All other uses of the land which prohibit future access to and extraction of the resources shall be considered secondary and generally discouraged until such time as the resource is substantially depleted. Alternative land uses may be permitted where:

- extraction would not be feasible; or
- the proposed use of the land serves a greater long-term interest of the general public;
- prior to any approval of a change in land use, the proponent shall consult with the County and the Ministry of Natural Resources and will be required to prepare a study indicating the nature of the land use change, detailing the deposit's potential for extraction and demonstrating the compatibility and the need for the alternative land use.

Provincial Policy Statement (2020):
S. 2.1 Natural Heritage

2.1.4 (a) & 2.1.7 Development and site alteration prohibited in PSW and habitat of endangered and threatened species.

2.1.8 Development and site alteration not permitted on adjacent lands unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

2.3.3.3 MDS required (livestock facility located at 312 County Road 38).

2.5 Mineral Aggregate Resources

2.5.1 Mineral aggregate resources shall be protected for long-term use and, where provincial information is available, deposits of mineral aggregate resources shall be identified.

2.5.2.4 When a license for extraction or operation ceases to exist, policy 2.5.2.5 continues to apply.

2.5.2.5 In known deposits of mineral aggregate resources and on adjacent lands, development and activities which would preclude or hinder the establishment of new operations or access to the resources shall only be permitted if:
a) resource use would not be feasible; or
b) the proposed land use or development serves a greater long-term public interest; and
c) issues of public health, public safety and environmental impact are addressed.

2.5.3.1 Rehabilitation

S. 3.1 Natural Hazards - ORCA did not note any.

Growth Plan:
MNRF confirmed a screening and sorting facility for material brought in from another site is not considered a mineral aggregate operation PPS and Growth Plan definition unless associated facilities outlined in subsection c) are occurring in addition to the other uses outlined in a) & b) of the definition.

4.2.8, 4.2.8.2 (a), (b), (c)

4.2.3.1 (d)

4.2.3.2 (permits within key hydrologic area where demonstrated)

4.2.3.1 (e)

4.2.4

Studies:
Traffic Impact
Planning Justification Report
EIS (within 120 m of PSW, Species at Risk)
Aggregate Assessment (Section 4.1.3.3 of County OP)
Noise Study

ORCA:
Environmental Consultant, GHD has already been retained, has begun work and will be continuing through this process. Wetlands, watercourse and Provincially Significant Wetland exist on site. GHD to provide site plan with GPS information and proper delineation using appropriate techniques to identify all the wetland areas and 30 m VPZ for appropriate zoning.

ORCA no flooding concerns from a floodplain perspective. Confirmed via e-mail dated March 30, 2023 their agency will <u>not</u> require any flood study for either the tributary or Meade Creek.

A good portion of the property is regulated and ORCA permits will be required for any construction. Visit https://www.otonabeeconservation.com/development-and-permits/

Peterborough County:

An OPA will be required (see link to application and fees in checklist below). The new OP which has not yet been approved by the Province designates the site Rural, Employment and Natural Core Area on Map DD-2. A Planning Justification Report is required in support of the OPA along with any other reports/studies identified by other agencies through this meeting.

The proposed setback from the property line to the new structure was identified as 51.2 metres and is acceptable as it exceeds the minimum requirement of the County which is 45 m.

A Storm Water Management Report is required. Please circulate the SWM Report that is prepared for MECP to County E&D to review any impacts on County infrastructure. The County does not foresee any overlapping comments between MECP and County E&D.

The requirement for a noise study was raised by County E&D. From an MECP perspective if equipment used on the site is regulated under Section 9 of the Environmental Protection Act, examples include crushing, grinding and processing equipment, then the activities would be regulated by MECP. The proponent and MECP have not previously discussed that these activities will occur on the site – please reach out to Gary Muloin if there are any questions. Further, MECP has not received any complaints with respect to noise from the subject property.

Therefore, unless there are activities under Section 9, MECP would defer to local noise by-law requirements where they exist. The Township noise By-law is available on-line at https://www.dourodummer.ca/en/by-laws-licences-and-animal-services/resources/2003-59--Prohibit-or-Regulate-Noise---Accessible.pdf

Please provide a discussion on how By-law No. 2003-59 will be complied in the Planning Justification Report/Land Use Compatibility Study, or alternatively, provide a noise study.

(County E & D comments provided after the meeting, May 8, 2023)

- Please confirm what the setback of the proposed shop (18.3m x 30.5m) is from the centerline of County Road 4 and from the property line.
- A traffic report as per the County's Traffic Impact Assessment Guidelines is required. Please have the proponent contact David Hovinga (dhovinga@ptbocounty.ca) to obtain a copy of the guidelines.
- A SWM report will also be required for the County's Review.

- The existing entrance is permitted however, we will require that the traffic report evaluate existing conditions and if needed, provide an appropriate design for an upgrade. The entrance is required to be paved within the County of Peterborough's road allowance.
- The proponent is required to submit a peer review reimbursement application to David Hovinga. Please see the following link to obtain the application: Development Peer Review - County of Peterborough (ptbocounty.ca)

MECP:
Owner has been working with MECP for some time. MECP has undertaken a site tour and an environmental consultant has been hired to undertake an assessment of the proposal along with an impact assessment related to access soil management.

The proposal is also being reviewed by MECP from a surface water perspective and from a groundwater perspective. Reviewing the GHD environmental package with respect to water resources and MECP will provide comments back to the proponent and GHD for any required tweaks to the proposal.

Everything is on track from an MECP perspective with the proposal including the MECP pre-submission package requirements. The pre-submission leads up to the submission of an environmental compliance approval application. An environmental compliance approval is required due to the management of access soil at the site.

From a water resources perspective, a hydro-g has been prepared and reviewed, but the EIS has not been reviewed in terms of whether the surface and ground water features are considered "sensitive".

From the hydro-g, the site contours slope towards Meade Creek but there is no SWM component included. The storage piles may contain contaminated or un-contaminated soil, and it appears as though everything would run towards the creek. Therefore, most sites like this require a storm water management plan to either limit or focus the stormwater so that it can either be treated in a SWM pond and discharged or dealt with on-site so there is no discharge. Confirmation is required to determine how much the site is contributing runoff to the creek. If flows are minor, then not a big issue, but the flows have not been confirmed.

Also, from the hydro-g, the report contains upstream/downstream water column as background and the table indicates these were sampled August 17th. However, the lab report shows one was sampled August 17th and one was sampled August 18th. During this period, there was a lot of rain, and the downstream site shows increases in turbidity as well as phosphorous, ammonia, organic carbon (none are issues as far as PWQO's). Upstream/downstream monitoring 4 times per year is proposed while the site is in operation which is acceptable to MECP. The report does not mention the tributary along the County Road being sampled even though some of the site contours

demonstrate runoff towards this tributary. The review depends on where the various stock piles are going to be located and MECP requested a map illustrating these locations in order to determine if there is an issue.

Other similar sites with crushed asphalt piles have problems with metals and PAH's. PAH's were not sampled, MECP suggests considering berming off the asphalt area so there is no runoff from that particular area.

With respect to the hydro-vac liquid soil pit, the report indicates the water either evaporates or infiltrates, however it must be impervious for hydro-soils and they have to be ~10,000 m3 – please explore further for the ECA submission.

Consideration should be had for land use compatibility with respect to sensitive residential receptors in the area. 30 m setback from tributaries is a good step.

MECP requested that their comments and any responses from GHD be provided by the Proponents to the Township and County for review.

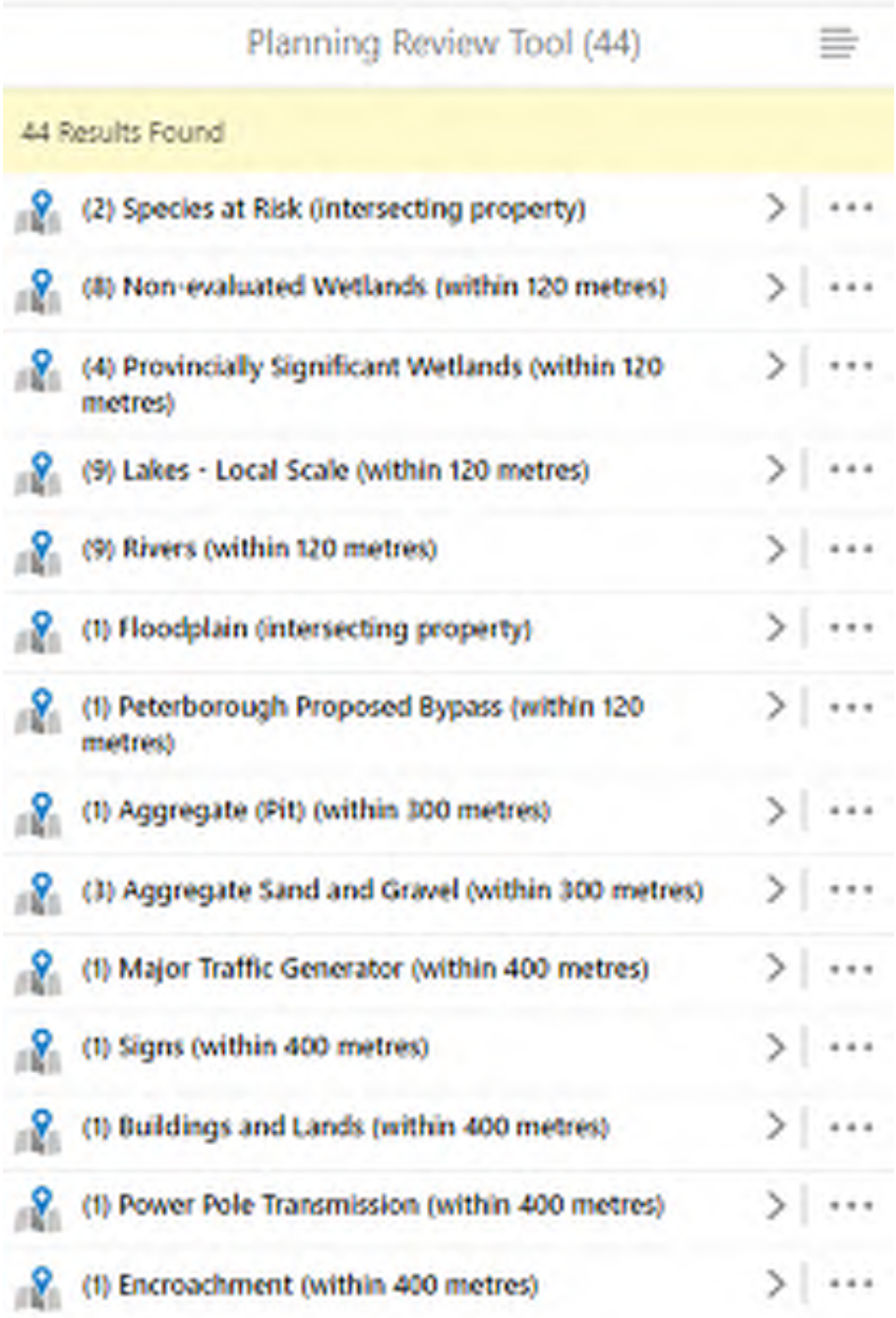
MNRF: (comments provided by email on April 6, 2023)
The proponent indicated they are not pursuing an aggregate license as they feel the resource has been depleted.

MTO: (comments provided by email on March 28, 2023)
The Ministry has no concerns with the proposal. Please note that a portion of the lands fall within MTO's permit control area, therefore any future developments must be circulated to MTO for review.

Curve Lake First Nation:
Did not attend or send comments.
Please contact Tiffany at Curve Lake First Nation and provide proof of additional consultation as part of complete application package tiffanyM@curvelake.ca

Review of roll file, GIS, and other records:
1. Roll file:
Correspondence from 2021 regarding the construction of 60' x 100' building for farm and construction equipment indicates OPA and ZBA required. List of permitted uses and applicable Official Plan & ZBL sections provided.
2. GIS:
Buildings: None listed.

Planning tool:



Pre-consultation Checklist for Development

☐ Servicing Options Report (for developer >5 units; letter or paragraph describing how developer arrived at servicing choice (i.e. private, communal, municipal) and why)) Click or tap here to enter text.

☒ Hydrogeological Studies to determine water quality and quantity and sewage servicing capabilities (in accordance with MOE guidelines and regulations) (If private individual systems are accepted, proponent to prepare a detailed hydro-g prior to planning approval. 95% of hydro-g's rec'd by MOEE are unacceptable) This has been prepared already. Please circulate the report, MECP comments and any addendums to County and Township Planning Staff.

☒ Storm Water Management Plan. Please circulate the report, MECP comments and any addendums to County and Township Planning Staff.

☒ Land Use Compatibility Study relative to any sensitive residential receptors.

☐ Market Analysis/Justification Study as part of Planning Justification Report.

☒ Environmental Impact Analysis. GHD work has already begun. Please circulate to MECP, County and Township Staff along with any comments and addendums.

☒ Archeological Study (if the site has already been fully disturbed and the location of the application is within the disturbed area then a study isn't usually required.) **However, please confirm with CLFN and provide proof of First Nation consultation with planning act applications.**

☒ Planning Justification Study/Analysis Click or tap here to enter text.

☒ Natural Resource Analysis (aggregates). The site is within an area identified as a primary sand and gravel resource and is adjacent to a licensed pit. Refer also to Section 4.1.3.3 of County OP

☒ Noise Impact Study explain how By-law No. 2003-59 will be complied with in the PJR/Land Use Compatibility Study or provide a noise impact study if the By-law cannot be met.

☒ Traffic Study: Traffic consultant to contact County staff (Daniel Ilkiewicz, DIlkiewicz@ptbocounty.ca) regarding study requirements.

☒ Geotechnical Report not required for Planning Act applications, but may be required at building permit stage.

☒ Lot Drainage and Grading Plan Click or tap here to enter text.

☐ Flood Study Click or tap here to enter text.

☐ Review of Impact on Municipal/Other Services – fire, waste disposal, school busing, road conditions, etc. (if the township requests) Click or tap here to enter text.

☐ Phase 1 Environmental Site Assessment (generally for lands previously used for commercial and industrial uses) Click or tap here to enter text.

☐ Record of Site Condition (converting from an commercial/industrial use to a sensitive (agricultural, residential, parkland or institutional) use) Click or tap here to enter text.

☒ Minimum Distance Separation Calculation (where barns exist within 1 km) include in PJR

☒ Peer Review Reimbursement Agreement **: County of Peterborough https://www.ptbocounty.ca/en/resourcesGeneral/Documents/planning-prra.pdf

☒ Official Plan Amendment**: County of Peterborough Application and Fees found on-line at: https://www.ptbocounty.ca/en/growing/official-plan-amendments.aspx

☒ Rezoning**: (ZBA): (S. 21.194.1.1) Township Application found on-line at: https://www.dourodummer.ca/en/planning-and-development/zoning.aspx Current fee for Rezoning Application - $1500.00 plus ORCA fee

☒ Site Plan Approval**: Township Application & By-law No. 2022-58 (attached). Current fee for Site Plan Approval - Major is $4000.00 with a minimum deposit of $5000.00

☒ Preliminary Development Agreement: Current Township fee for Preliminary Development Agreement - $1000 + $5250 deposit to be provided at time of OPA application.

☐ Development Deposit Click or tap here to enter text.

☐ Line of Credit Click or tap here to enter text.

TOWNSHIP OF DOURO-DUMMER

SITE PLAN CONTROL GUIDELINES

A) INTRODUCTION

In accordance with Section 41 of the Planning Act, R.S.O. 1990 the Council of the Township of Douro-Dummer declared its entire land area to be subject to Site Plan Control.

The purpose of these guidelines is to outline the requirements for the preparation and submission of site plans and other related drawings and documents, and explain the site plan approval process.

B) SITE PLAN CONTROL AGREEMENT

As a condition of the approval of the site plans and drawings, the Township will require the applicant to enter into a Site Plan Control Agreement. The Agreement defines the conditions of approval, the works and actions required, and the required guarantees of performance. The approved plans and drawings form part of the Agreement. This Agreement will be in a form suitable for registration.

The Chief Building Official cannot issue building permits until the Agreement is executed by the Applicants and the proposal fully conforms to the approved drawings (and to other applicable Codes and By-laws).

Formal application, including the payment of the necessary application fees, must be made to the Township of Douro-Dummer where approval is being sought for plans and drawings.

C) SUBMISSION REQUIREMENTS

1. Completed application form (attached)

2. Application processing fee (paid in full) plus ORCA fee.

3. A certificate of ownership or letter of authorization (if application not submitted by the owner).

4. Legal Survey and/or legal description of the property, showing any easements, rights-of-way, existing structures, features, adjacent lots, etc. and including a calculation of the area of the property (The certificate of an Ontario Land Surveyor is preferred).

5. The following plans and drawings in sufficient detail to fully explain the proposal. All plans and drawings must be prepared in metric.

    a) SITE PLAN (11 copies and 1 electronic copy) to indicate:

        i) Dimensions and area of the property being developed indicating any road widenings, easements, etc. required;

        ii) Proposed staging of the development of the property and of the construction of the buildings;

        iii) Location and Building Code Classification of all buildings and structures, both existing and proposed, indicating all building dimensions, setbacks, separations, building entrances, (both pedestrian and vehicular), projections, canopies, equipment housings, dust collectors, masts, ground signs, building height, etc.;

iv) Location and area of all separate uses within the building, the location of firewalls, and the size of areas intended for different, accessory or complementary exterior use, such as open storage yards etc.;

v) Vaults, central storage and collection areas and other facilities and enclosures for the storage of garbage and other waste material;

vi) Access ramps, driveways, etc., indicating widths, curve radii, medians, curbs, steps, etc., and the proposed direction of traffic flow where applicable;

vii) Vehicular parking areas and stalls, dimensioned and numbered and indicating any areas to be assigned to visitors, tenants, employees, etc.;

viii) Vehicular loading docks and doors indicating fully dimensioned truck parking spaces, manoeuvring areas and clearances;

ix) Location of all signs and any lighting thereof;

x) Location and direction of exterior lighting;

xi) Building on adjacent lots and generally the existing or proposed improvements in the adjacent yards and mutual features, such as driveways, parking, etc.;

xii) Location of street hydrants, hydro poles, drainage ditches, catchbasins, etc., adjacent to the subject property;

xiii) Location and size of water services, sewage disposal services and hydro services to be constructed on site;

xiv) Statistical summary of development perimeters in accordance with zoning regulations including the following, preferably in chart form:

- Lot area
- Building coverage
- Total gross floor area of proposed buildings and existing buildings to be retained
- Floor area on each level including basement
- Floor areas of component uses
- Total usable floor area
- Total number of parking spaces proposed
- Number of parking spaces for visitors, tenants, and employees, etc.
- Total site area to be landscaped including walkways, courts, etc.

b) GRADING/DRAINAGE PLAN (11 copies and 1 electronic copy) to indicate: (Note: may be included on Site Plan)

i) Existing and proposed contours and/or spot elevations, bench marks, and elevations on roads and adjacent properties (7.5 metres beyond site);

ii) Base floor elevations of proposed buildings and structures;

iii) Elevations of all relevant topographic features (roads, curbs, ditches, drainage outfalls, etc.);

iv) Direction of drainage flow and location of all drainage discharge points including roof drainage and parking lot drains;

v) Supporting data and calculations with respect to storm drainage flow volumes and capacity of existing outfalls;

vi) Any other information required to fully describe the project grading and drainage;

c) LANDSCAPING PLAN (11 copies and 1 electronic copy) to indicate: (Note: may be combined with site plan)

i) Areas for landscaping, sodding, seeding, walkways, sidewalks, courts, entrances, walls and fences, etc., showing trees (including all existing trees and indicating those to be cut down), ditches, etc.;

ii) Location of existing plant material;

iii) Location, species and size of existing plant material to be preserved;

iv) Location, species and size of new plant material to be added;

v) Berming, fencing and screening details, where applicable;

vi) Any other information required to fully describe the project landscaping.

d) ELEVATION DRAWINGS (11 copies and 1 electronic copy) to indicate: (required for all exterior walls in commercial, industrial and institutional buildings)

i) Front, side and rear elevations showing finished grade, floor and roof elevations;

ii) Type and colour of exterior building materials.

iii) Entrances, windows;

iv) Height of buildings;

v) Signage and exterior lighting;

vi) Any other information required to fully describe the project;

NOTES: ALL PLANS AND DRAWINGS SHOULD INCLUDE METRIC TERMINOLOGY. ALL PLANS SHALL BE MINIMUM SCALE OF 1:400 (METRIC) AND THE ELEVATION PLANS SHALL BE A MINIMUM SCALE OF 1:200 (METRIC).

CERTAIN OF THE ABOVE PLANS MAY BE COMBINED PROVIDED ALL REQUIRED INFORMATION IS ADEQUATELY AND LEGIBLY DISPLAYED.

D. SITE PLAN APPROVAL PROCESS

The site plan approval process will normally consist of the following steps:

1. Township Staff receive the completed site plan application form and the applicable processing fee (plus ORCA fee).

2. A preliminary review of the application and site plans is completed by staff to ensure that all required information is provided (See Section C, "SUBMISSION REQUIREMENTS").

3. Notice of the application and a copy of the site plans is provided to Council for information and direction.

4. A copy of the site plans may be circulated to the Township Planner and/or Engineer for detailed review, if deemed appropriate by Council.

5. The Clerk may, at the direction of Council, provide notice of the application to any relevant agency or utility deemed to have an interest in the development proposal and abutting property owners for comment.

6. The Planner and/or Engineer, if involved, will submit a report to Council based on the detailed review of the site plans.

7. Minor applications of a straightforward nature may be reviewed by staff, with a corresponding report submitted to Council.

8. At Council's discretion, the Township Solicitor may be requested to review and comment on the proposed site plan agreement prior to execution.

9. Council, if satisfied with the site plans, may pass a by-law to authorize the signing and full execution of a site plan agreement, which will then be registered on title.

10. Building permits may be issued following the execution and registration of the site plan agreement and fulfilment of any conditions (including, the provision of a letter of credit by the applicant).

11. Regular work inspections will be completed by staff to ensure development is proceeding in full compliance with the approved site plans. A clearance letter will be issued at such time as the work is completed to the satisfaction of the Township.

NOTICE: For minor development proposals, Council may, at their discretion, accept simplified site plans which adequately describe the proposal. Municipal staff will assist in identifying guideline items which will apply to the individual development

TOWNSHIP OF DOURO-DUMMER
APPLICATION FOR SITE PLAN APPROVAL

APPLICANT INFORMATION

APPLICANT'S NAME		TELEPHONE NO.	SOLICITOR'S NAME		TELEPHONE NO.
STREET ADDRESS			STREET ADDRESS		
CITY	PROVINCE	POSTAL CODE	CITY	PROVINCE	POSTAL CODE
AGENT'S NAME		TELEPHONE NO.	OWNER'S NAME (Signatory to Agreement)		TELEPHONE NO.
STREET ADDRESS			STREET ADDRESS		
CITY	PROVINCE	POSTAL CODE	CITY	PROVINCE	POSTAL CODE
ARCHITECT/ENGINEER'S NAME		TELEPHONE NO.	PLANNING CONSULTANT'S NAME		TELEPHONE NO.
STREET ADDRESS			STREET ADDRESS		
CITY	PROVINCE	POSTAL CODE	CITY	PROVINCE	POSTAL CODE

LOCATION AND DESCRIPTION OF PROPERTY

STREET ADDRESS – IF INDIVIDUAL PROPERTY (OR GROUP OF PROPERTIES)		LOT	CONCESSION
NEAREST INTERSECTION(S)	EXISTING EASEMENTS YES / NO	REGISTERED PLAN NO.	LOT/BLOCK NO.
FRONTAGE (m)	DEPTH (m)	AREA (m²)	
LAND USE DESIGNATION (OFFICIAL PLAN)	PRESENT ZONING OF LAND		
PRESENT USE OF LAND			
PROPOSED USE OF LAND			

INFORMATION ON PROPOSED DEVELOPMENT

CONSTRUCTION YR. MO. DAY TO **START** (ESTIMATE) ___ ___ ___	CONSTRUCTION YR. MO. DAY TO **END** (ESTIMATE) ___ ___ ___	DIMENSIONS OF BUILDINGS(S)		
NUMBER OF STOREYS	GROUND FLOOR AREA (m²)	TOTAL FLOOR AREA (m²)	FLOOR AREA OF ADDITIONS (m²)	
NUMBER OF PARKING SPACES	NATURE OF PROJECT: (ie. Commercial, Industrial etc.)			
RESIDENTIAL DATA (IF APPLICABLE) TYPE & NUMBER OF UNITS	BACHELOR	1 BEDROOM	2 BEDROOM	3 BEDROOM
	OTHER		TOTAL UNITS	

I hereby agree to bear the cost of all consulting planning, engineering, legal and registration fees related to this application as deemed necessary by the Municipality on request, to be applied to such costs, and for which the Municipality will account.

RETURN APPLICATION TO:

Township of Douro-Dummer
894 South Street, P.O. Box 92
Warsaw, Ontario KoL 3Ao

_____
APPLICANT'S SIGNATURE DATE

The Corporation of the Township of Douro-Dummer

By-law Number 2022-58

Being a By-law to Designate the Township of Douro-Dummer as a Site Plan Control Area

Whereas under the provisions of Section 41 (2) of The Planning Act. R.S.O. 1990, as amended, authority is granted to Councils of Municipalities to designate a site plan control area, where an Official Plan is in effect;

And Whereas Section 7.17.1 of the County of Peterborough Official Plan designates all lands in the Township as a Site Plan Control Area;

And Whereas Section 41 (13) of The Planning Act, R.S.O., 1990, as amended, provides authority for the Council of a Municipality to pass a By-Law prescribing certain classes of development to be exempt from Section 41 (4) and (5) of The Planning Act, 1990, as amended, and providing for the delegation of any of the Council's powers or authority as provided therein;

And Whereas the whole of the area covered by the Official Plan is designated as a site plan control area which is all within the limits of the Corporation;

Now Therefore the Council of The Corporation of the Township of Douro-Dummer enacts as follows:

1. In this by-law:
   1.1. **"Development"** means the construction, erection or placing of one or more buildings or structures on land, or the making of an addition or alteration to a building or structure that has the effect of substantially increasing the size or usability thereof, or the laying out and establishment of a commercial parking lot;

   1.2. **"Corporation"** means The Corporation of the Township of Douro-Dummer;

   1.3. **"Owner"** means the owner of land whose interest in the land is defined and whose name is specified in the proper Registry of Land Titles Office;

   1.4. **"Person"** includes an owner;

   1.5. **"Gross Floor Area"** means the aggregate of the floor areas of all the storeys of a building including the floor area of any basement but not of a cellar or subcellar, which floor areas are measured between exterior faces of the exterior walls of the building at each floor level but excluding car parking areas

within the building and, for the purpose of this paragraph the walls of an inner court and shall be deemed to be exterior walls.

2. The whole of the area covered by the Official Plan for the Township of Douro-Dummer is designated as a site plan control area insofar as lands in all the zoning categories under the Township of Douro-Dummer Zoning By-law number 10-1996, as amended, save and except for those uses specifically exempted under section 4 of this by-law.

3. Within the various commercial, industrial and institutional, rural and agricultural zones, projects of the following magnitude shall require site plan approval:

3.1. Any new commercial or industrial building or building addition, greater than 100 square metres of gross floor area;

3.2. Any other new non-residential building, or building addition greater than 100 square metres of gross floor area;

3.3. Any project as determined by the Chief Building Official and/or the Planner within an aggregate resource area;

3.4. The approval process has been delegated to the Chief Building Official and the Planner. Agreements shall be signed by the Clerk and the Mayor as per changes enacted by Bill 109.

4. The following projects shall be exempt from site plan control:

4.1. Any construction or alteration of a single-family dwelling, duplex or semi-detached dwelling,

4.2. Any building accessory to the uses described in paragraph 4.1 of this section;

4.3. An inground or above ground swimming pool constructed in connection with the uses described in paragraph 4.1 of this section;

4.4. Any new non-residential building including any accessory building less than 100 square metres of gross floor area;

4.5. Any building addition less than 100 square metres of building area or floor area, whichever is greater;

4.6. Any interior alteration to a building or change of use, but not a change of use to a group home;

4.7. Any agricultural and farm related buildings or structures that are utilized in active farming operations;

4.8. Any project which the Council of the Corporation by resolution specifically exempts from the application of the within By-law.

5. Notwithstanding the aforementioned exemptions, site plan control shall apply to:

5.1. Any project, as determined by the Chief Building Official and/or the Planner, which is the subject of a rezoning application or;

5.2. Any project where site plan control is imposed as a condition of an application to the County Land Division Committee.

6. Notwithstanding any of the provisions of any By-law which may be inconsistent with the By-law, no person shall undertake any development in the site plan control area unless the Chief Building Official and Planner have approved the following:

6.1. Plans showing the location of all buildings and structures to be erected and showing the location of all facilities and works to be provided in conjunction therewith and of all facilities and works required under Section 7, subsection 7.1.

6.2. Drawings showing plan, elevation and cross-section views for each building to be erected within a site plan control area which are sufficient to display:

6.2.1. The massing and conceptual design of the proposed building;

6.2.2. The relationship of the proposed building adjacent buildings, streets, and exterior areas to which members of the public have access; and

6.2.3. The provision of interior walkways, stairs and escalators to which members of the public have access from streets, open spaces and interior walkways in adjacent buildings, but which exclude the following: the layout of interior areas, other than the interior walkways; stairs and escalators referred to in clause 6.2.3; the colour, texture and type of materials; window details; construction details; architectural detail and interior design.

7. As a condition to the approval of the plans and drawings referred to in Section 6, the Corporation may require the owner to:

7.1. Provide to the satisfaction of and at no expense to the municipality any or all of the following:

7.1.1. Widening of highways that abut on the land;

7.1.2. Subject to The Public Transportation and Highway Improvement Act, facilities to provide access to and from the land such as access ramps and curbing and traffic direction signs;

7.1.3. Off street vehicular loading and parking facilities, either covered or uncovered access driveways, including driveways for emergency vehicles, and the surfacing of such areas and driveways;

7.1.4. Walkways, including the surfacing thereof, and all other means of pedestrian access;

7.1.5. Facilities for the lighting, including floodlighting, of the land or of any buildings or structures thereon;

7.1.6. Walls, fences, hedges, trees, shrubs or other ground cover or facilities for the landscaping of the lands or the protection of adjoining lands;

7.1.7. Vaults, central storage and collection areas and other facilities and enclosures for the storage of garbage and other waste materials;

7.1.8. Easements conveyed to the municipality for the construction, maintenance or improvements of watercourses, ditches, land drainage works and sanitary sewerage facilities on the land;

7.1.9. Grading or alteration in elevation or contour of the land and provision for the disposal of storm, surface and waste water from the land and from any buildings or structures thereon;

7.2. Maintain to the satisfaction of the municipality and at the sole risk and expense of the owner any or all of the facilities or work mentioned in paragraph 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.1.6, 7.1.7, 7.1.8, and 7.1.9 of clause 7.1, including the removal of snow from access ramps and driveways, parking and loading areas and walkways;

7.3. Enter into one or more agreements with the municipality dealing with any or all of the facilities, works or matters mentioned in clauses 7.1 and 7.2 or with the provision and approval of the plans and drawings referred to in Section 6.

8. Any agreement entered into clause 7.3 of Section 7 may be registered against the land to which it applies and the Corporation is entitled to enforce the provisions thereof against the owner and, subject to the provisions of The Registry Act and The Land Title Act, any and all subsequent owners of the land.

9. Section 326 of The Municipal Act R.S.O., 1990, as amended, applies to any requirements made under clauses 7.1 and 7.2 of Section 7 and to any requirements made under an agreement entered into under clause 7.3 of Section 7.

10. Default:

10.1. Where the owner is directed or required by the By-law that any matter or things be done and such person defaults in doing such matter or thing, it may be done by the Corporation at its expense and the Corporation may recover the expense in doing it by action or the same may be recovered in like manner as municipal taxes.

10.2. Where the owner is in default in doing any matter or thing which the owner is directed or required to do by this By-law the owner is to be given written notice by prepaid registered mail to the owner's usual place of business or place of residence advising of the default and affording the owner not less than thirty (30) days to remedy the default.

10.3. Where the owner has been given notice of default by prepaid registered mail and the owner has failed to remedy the default within the time prescribed in the notice the owner is entitled to appear before a meeting of the Council in respect of such default before the Corporation proceeds under sub-section 10.1 of this section.

11. No building permit or permits are to be issued until:

11.1. The plans showing the location of all buildings and structures to be erected on the land and the location of the other facilities required by the By-law are filed by the owner with the Corporation and approved by the Corporation, and;

11.2. The perspective plans and drawings showing buildings, elevations and cross sections of industrial and commercial buildings and institutional buildings are filed by the owner with the Corporation and approved by the Corporation, and;

11.3. The owner conveys to the Corporation lands for the widening of highways required by the Corporation, free of charge and with a title free of encumbrance, and;

11.4. The owner conveys to the Corporation, free of charge and with a title free of encumbrance, lands for a walkway where required by the Corporation, and;

11.5. The owner conveys to the Corporation, free of charge and with a title free of encumbrance, any easements required by the Corporation for its purposes, and;

11.6. The owner files with the Corporation, for its approval, a lot grading plan showing all grading and changes in elevation or contour of land and disposal of storm, surface and waste water from the lands or any buildings or structures to be erected thereon;

11.7. The owner has entered into any agreements required under Section 7.3.

12. No person shall:

12.1. Block or impede access to land at the point of ingress or egress shown on the plans and drawings filed with the Corporation, and;

12.2. Park a vehicle on private property other than on the parking and loading access shown on the plans filed with the Corporation, and;

12.3. Block or impede the use of walkways shown on the plans filed with the Corporation, and;

12.4. Interfere with snow or ice removal directly or indirectly and without limiting the generality of the foregoing, no vehicle shall be parked so as to obstruct the removal of ice or snow from access ramps, driveways, parking areas and walkways shown on the plans filed with the Corporation, and;

12.5. Change the grading or contour or elevation of land from that shown on the plans filed with the Corporation and approved by the Engineer of the Corporation without the consent in writing of the Engineer of the Corporation, and;

12.6. Block or interfere with the disposal of or alter the normal drainage course for storm surface and waste water from land or buildings or structures unless alternative drainage is provided to the written satisfaction of the Engineer for the Corporation, and;

12.7. Block or interfere with watercourse, watermains, ditches, land drainage works or sanitary sewerage facilities of the Corporation or of the County of Peterborough, whichever is the case, and;

12.8. Permit floodlights from his land to illuminate neighbouring buildings where such illumination disturbs the sleep or privacy of the occupants of the buildings so illuminated, and;

12.9. Fail to maintain walls, fences, hedges, trees, shrubs or other suitable groundcover shown on the plans filed with the Corporation, and;

12.10. Fail to keep in good repair or uncovered all vaults, central storage and collection areas and other facilities and enclosures for the storage of garbage and other waste materials as shown on the plans filed with the Corporation.

13. Notwithstanding the foregoing, no approval of site plans and elevation drawings for development or redevelopment in a site plan control area shall be approved unless or until proper drawings have been prepared, either by a qualified draftsman, surveyor, engineer or architect. Such drawings must be signed by the part preparing same. Such drawings must be legible. Extra copies of such drawings must also be provided in legal size and still be legible in case it is determined that a site plan agreement must be registered against the title to the owner(s) land.

14. Violations and Penalties

14.1. Any persons who violates any provision of the By-law or causes or permits a violation shall be guilty of an offence and, upon conviction therefore, shall be liable for the penalties set out in Section 67 of The Planning Act, R.S.O., 1990. Each day of violation shall constitute as offence.

15. Remedies

15.1. In case any building or structure is to be erected or altered or any part thereof is to be used, or any lot is to be used in contravention of any requirement of this

By-law, such contravention may be retained by action in the instance of any ratepayer or of the Corporation pursuant to the provisions of The Planning Act or the Municipal Act in that behalf.

16. Validity

16.1. If any section, clause or provision of this By-law is for any reason declared by a court of competent jurisdiction to be invalid, the same shall no affect the validity of the By-law as a whole or any part hereof, other than the section, clause or provision so declared to be invalid. It is hereby declared to be the intention that all the remaining sections, clauses and provisions of this By-law shall remain in full force and effect until repealed, notwithstanding that one or more provisions hereof shall have been declared to be invalid.

17. That this By-law shall come into effect on the date it is passed by the Council of Corporation of the Township of Douro-Dummer, subject to the applicable provisions of The Planning Act, R.S.O., 1990, as amended.

18. That By-law No. 2022-32 of the Township of Douro-Dummer is hereby repealed.

Enacted and passed this 20th day of December, 2022.

Mayor, Heather Watson

Acting Clerk, Martina Chait-Hartwig

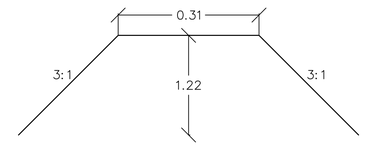
SITE STATISTICS

CURRENT ZONING: SPECIAL DISTRICT 194 (S.D.-194)

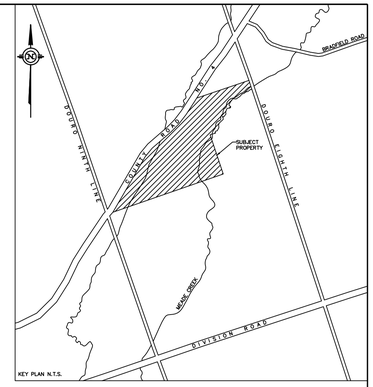
	PERMITTED	EXISTING
MIN. LOT AREA	400000m² (40ha)	359168.6m² (35.92ha)
MIN. LOT FRONTAGE	180m	1081.3m

PROPSOED ZONING: EXTRACTIVE INDUSTRIAL (M2)

	PERMITTED	PROPOSED
MIN. FRONT YARD	30m	51.2m
MIN. SIDE YARD	15m	340.4m
MIN. REAR YARD	15m	260.9m
MIN. WATER YARD	30m	219.4m
MAX. PIT AREA	80000m² (8ha)	2060m² (0.21ha)

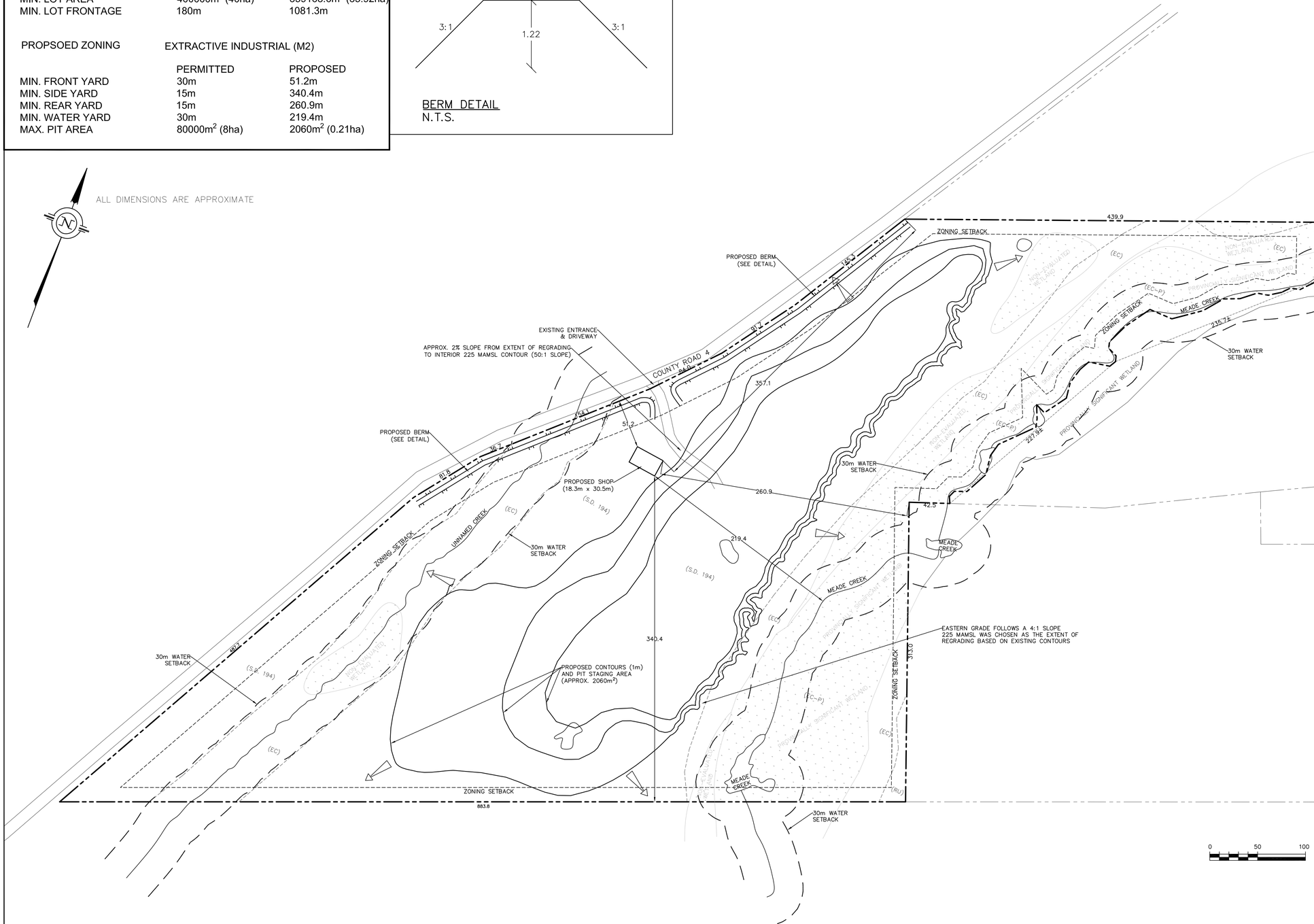


BERM DETAIL
N.T.S.



ALL DIMENSIONS ARE APPROXIMATE

LEGEND
MAJOR FLOW ROUTE



Nº:	DATE	DESCRIPTION	BY

REVISIONS

PROJECT TITLE:

LEAHY PIT - ROLL #1522010004048000
PT LOT 3, CON 9, DOURO TOWNSHIP
COUNTY OF PETERBOROUGH

DRAWING TITLE:

PROPOSED SITE PLAN

TD Consulting INC.
155 St David St
Lindsay, Ontario
K9V 4Z6
Phone : (647)-535-9461
e-mail : info@td-consulting.ca

DRAWN BY:	PROJECT Nº:
KM	022-769
DESIGNED BY: TD	
APPROVED BY: TD	DRAWING Nº: SP-1
DATE: JAN 2023	SCALE: AS SHOWN

LAST REVISED MAR 6-2023

NON-RENEWABLE RESOURCES

TRAINING MANUAL

A. Mineral Aggregates

B. Petroleum Resources

C. Human-Made Hazards
- **Former Petroleum Resource Operations**
- **Former Aggregate Resource Operations**

Version 1.1

March 1997

TABLE OF CONTENTS

Non-Renewable Resources Training Manual Overview

1. Introduction

The purpose of the manual is to assist planning authorities in implementing Policy 2.2 of the Provincial Policy Statement (Government of Ontario, 1996). The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest in land use planning and development. Section 2.2 of the PPS deals with Mineral Resources : Mineral Aggregates, Minerals and Petroleum Resources. The manual has been prepared by the Ministry of Natural Resources and covers those resources within the mandate of the Ministry, namely mineral aggregates (including sand, gravel, bedrock and other construction materials), petroleum resources (includes natural gas, oil, salt solution mining and natural gas and hydrocarbon storage) and human-made hazards associated within former unregulated petroleum resource extraction operations, such as improperly plugged wells and unstable salt solutions cavities. Industrial and metallic minerals are the mandate of the Ministry of Northern Development and Mines and are not included as part of this manual.

The manual is intended to facilitate the transfer of technical information and highlight approaches that may be used to ensure the provincial interests regarding how: i) the protection of mineral aggregate and petroleum resources; ii) the protection of extraction and processing operations and associated facilities; and iii) the protection of public health and safety in relation to existing, future or former operations, are addressed in land use planning.

The manual is advisory in nature and can be used by those that want to use it. It is not intended to add or subtract from the policy statement. However, the manual does explain how the Ministry of Natural Resources would approach the protection of mineral resources recognizing that there may be alternative procedures or approaches that may be used to achieve the overall intent of the PPS.

2. Policy Context

The Provincial Policy Statement contains three main principles upon which Ontario's long term economic prosperity, environmental health and social well- being depends::

1. managing change and promoting efficient, cost effective development and land use patterns which stimulate economic growth and protect the environment and public health;
2. protecting resources for their economic use and/or environmental benefits; and
3. reducing the potential for public cost or risk to Ontario residents by directing development away from areas where there is a risk to public health or safety or of property damage.

The Mineral Resources policies have a foundation derived from these three principles. The industries involved in the extraction and processing industries of the province's mineral

resources have historically been the basis for substantial employment opportunities and economic growth in Ontario. In addition, much of the province's manufacturing industries rely upon the ready supplies of Ontario's raw or semi processed mineral resources. As a matter of provincial interest, it is important that "change" be managed so that economic opportunities associated with the continued development of the province's resources (e.g. minerals) not be impeded by poor land use developments and that change occur within a context that provides for the protection for the environment and public health.

The Provincial Policy Statement, Section 2.2 - Mineral Resources, outlines the provincial interest for all non-renewable resources, more specifically Mineral Aggregates, Minerals and Petroleum Resources. The policy states that "Mineral resources (*mineral aggregates, minerals and petroleum resources*) will be protected for long term use".

The intent of the policy is to ensure that both the province's developed and undeveloped mineral resources and operations will be protected from land uses that could interfere with the current or future development of these resources (i.e. the resource is to be protected for long term use). Municipalities and other planning authorities should ensure that incompatible land use development does not occur in areas of mineral resources. Existing operations and the resources within the land holdings of these operations should also be protected so that they remain available to meet immediate or current needs but also future demand. This direction is further identified within the individual policies for minerals and petroleum resources (subsection 2.2.2.2) and mineral aggregates (subsection 2.2.3.2) by specific reference to mineral resource operations, mineral aggregate operations and petroleum resource operations. The policy includes the stipulation that these operations "will be protected from activities that would preclude or hinder their expansion or continued use or which would be incompatible for reasons of public health, public safety or environmental impact".

The Provincial Policy Statement, Section 3.2. - Human-made Hazards, specifies that "development on, abutting or adjacent to lands affected by mine hazards or former mineral resource operation will be permitted only if rehabilitation measures to address and mitigate known or suspected hazards are under-way or have been completed. The mandate of the Ministry of Natural Resources in this regard extends to former aggregate resource operations and former petroleum resource operations. This policy area addresses concerns about public health and safety should development occur in areas of older or former resource operation that predate the introduction of legislation and hence were never regulated under either the Aggregate Resources Act or the Petroleum Resources Act. In many cases, the sites of these former resource operations were not properly abandoned or rehabilitated to address or mitigate hazards that resulted from unregulated extraction activities.

3. Outline of the Training Manual

The Provincial Policy Statement references four distinctly separate non-renewable resource issues, namely: "mineral resources", "petroleum resources", "mineral aggregates" and "human-made hazards" associated with former resource extraction operations. While there is some commonality within components of the provincial interest in each of these resource topics, the manner in which they can be dealt with is vastly different. In a land use planning context the

manner in which the policies are applied differs. This is due to the inherent differences in the geology of the deposits, the differing nature of the manner in which the resource is extracted (e.g. aggregates from pits and quarries, minerals from mines, and petroleum from wells) and, to some extent, the areal and geographical distribution of the resources themselves (e.g. pits and quarries occur in most areas, petroleum only in southern parts of the province and most mines in northern Ontario).

There is also a distinct separation of mandates between the Ministry of Natural Resources and the Ministry of Northern Development and Mines. The Ministry of Natural Resources mandate extends to mineral aggregates, petroleum resources and hazards associated with former aggregate and petroleum resource operations that have not been properly rehabilitated before abandonment. This manual therefore deals only with those resources under this mandate. The main body of this training manual is presented in three (3) parts as follows:

Part A	-	Mineral Aggregates
Part B	-	Petroleum Resources, including Salt Brine
Part C	-	Human-made Hazards associated with former unregulated aggregate and petroleum resource operations

Author's Note:

Due to Logistical and Timing Problems the first Version of the Training Manual will contain only Part A. A later version will be released and forwarded to all participants in the training sessions including Parts B & C.

Part A

Mineral Aggregates

Part A - Mineral Aggregates

1.0 Introduction

Mineral aggregates are a non-renewable resource and have no substitutes that are available in either the quantities required or at the same reasonable cost. Aggregates consist predominantly of sand, gravel, clay and bedrock (including stone used in cement, lime or clay bricks or tile) . Aggregates are a required construction material, consumed in substantive quantities to meet society's needs for construction.

Aggregates are used in many forms of construction. It is literally the foundation of almost all built structures and of the provinces economy. It is used in the foundations and walls of our homes, schools and offices and in the roads, highways, bridges and other highway structures. The thriving economy of any area depends upon an efficient network of transportation corridors to move goods and services to market and the consumer. The province's transportation network requires continual addition of new roads and the renewal of existing roads. Road construction is the major consumer of aggregates in Ontario and it has been estimated that 60 % of the aggregates consumed, go into various forms of road construction.

As the cost of aggregates increases, due to the depletion of near market sources and due to sterilization of the aggregate resource areas by incompatible development, the cost of construction (roads, buildings, sewers, etc.) will also increase. This increase will result from scarcity of a ready supply to meet the demand, but also because of the added cost of transportation from more distant sources. Increased haulage distances will add to the deterioration of the roads over which the aggregates are hauled and increased environmental and social costs (e.g. increased fossil fuel emissions from truck exhaust and more trucks past more people) adding to concerns for public safety on the roadways. Therefore it is extremely important to ensure that adequate supplies of aggregate are protected as close to areas where they will be required for current and future generations to use.

1.1 Importance of Aggregates

Ontario's production of sand, gravel and bedrock (Table 1) comprised 40% of Canada's total production of 339 million tonnes in 1994, which is near the same proportion as Ontario's population is to that of Canada (11 million people in Ontario out of 29 million in Canada).

The Greater Toronto Area (GTA) is the most populous region in Ontario with 4.5 million residents and is the largest producer and consumer of aggregates in the province. In 1994, the GTA produced one out of every six tonnes of aggregate in the province. In 1989 it was one out of every five tonnes, when the annual production for Ontario peaked at 197 million tonnes.

Despite being a major aggregate producing centre, the Greater Toronto Area still imported over 20 million tonnes from surrounding areas during the peak production year of 1989 when the GTA demand for aggregates exceeded 65 million tonnes. This means that one out of every three tonnes produced in the province in 1989 went into construction projects in the GTA.

Table 1: Production of Aggregates (Millions of Tonnes/Percentage)

	1989	1990	1991	1992	1993	1994
Canada	409	370	315	341	339	339
Ontario	197	161	135	128	131	137
Ontario's %	48%	44%	43%	38%	39%	40%

Aggregates are a very important mineral commodity in Ontario and to put this importance into perspective it is useful to compare aggregate production with that of other minerals. Aggregate production tonnage exceeds that of all other minerals and the value of aggregate production (i.e., sand, gravel, stone, clay, cement and lime) ranked second after nickel in 1989, 1990 and 1993 (Table 2) and ranked third after gold and nickel in 1991 and 1992 (Ontario Mineral Score, 1993).

Table 2: Value of Production in Ontario ($ Millions 1993)

	1989	1990	1991	1992	1993
Nickel	2010	1346	1219	1006	859
Aggregates	1363	1252	1003	934	969
Gold	1142	1150	1030	999	1081
Copper	922	861	709	764	703

Mineral aggregate resources are vital to Ontario's economy. The supply of mineral aggregates as an essential construction material, is important to the overall development of any area. Ontario's aggregate production has averaged 157 million tonnes between 1985 and 1994, peaking at 197 million in 1989. In 1995, production was 130 million tonnes. Of this production, 59 million tonnes was sand and gravel and 49 million tonnes was crushed stone, with the remaining production being for clay/shale and other stone products.

Most of the aggregates produced in Ontario are used in highway and road construction and concrete and asphalt applications. Clay and shale production combined with building and dimension stone production represents about 3 percent of production.

Mineral aggregate resources vary in quality and significance and cannot be found everywhere. Some areas have abundant resources, others have little or none. Demand for them varies depending on the location and local, regional or provincial requirements.

Mineral aggregates are a non-renewable resource and have no substitute available in the quantities needed to replace them. Therefore, all parts of Ontario possessing mineral aggregate resources share a responsibility for meeting future provincial demand.

Many parts of the Province are experiencing a reduction in availability of mineral aggregates as a result of:

* depletion of near market supplies;
* sterilization of valuable mineral aggregate sources by other development, (e.g. housing occurring over or adjacent to the deposits); and
* restrictive controls which make the establishment and operation of pits and quarries difficult.

A scarcity of available mineral aggregates results in increased mineral aggregate costs, through:

* added haul costs of the material from distant sources;
* use of more expensive substitute materials; or
* use of expensive processing techniques to upgrade lower quality materials.

The location of pits and quarries is directly linked to the distribution of the resources and to the location of demand for aggregate products. It is no coincidence that municipalities that have resources closest to the Greater Toronto Area (GTA), which is the largest population centre in the province, also have the highest aggregate production. At the peak of production in 1989 and 1990, GTA production was 45 million tonnes. An additional 20 million tonnes were also imported from the surrounding areas bringing the total consumption in the GTA to 65 million tonnes. In other words a third of the GTA demand for construction aggregates was imported. This emphasises the importance of the resource not only as a local supply but also as a regionally and provincially significant resource. There is a need for those with the resource to share it with those without the resource.

Most aggregates or products derived from aggregates are delivered to the consumer on trucks. Rail ceased to be used to move aggregates in southern Ontario in 1995 and the volume of truck traffic on the GTA highways has become a recent concern in terms of public safety. Haulage from more distant locations affects the cost to the consumer such that transportation can represent 60 percent or more of the delivered cost. Longer hauls also adds to the deterioration of the road system (requiring more aggregates for more frequent repairs and reconstruction), releases more emissions from truck exhaust into the atmosphere and causes increased social disruption as more trucks past more people to get to the construction sites. Most of these additional costs are borne by the taxpayer, since over 60 percent of aggregates are consumed in road construction.

To minimize the cost of transportation and the social environmental impact of truck haulage it is very important to access the resource as close as possible to where the materials are needed (i.e. near the market area). Aggregate extraction has some social and environmental impact that can be mitigated. On the other hand, increased social and environmental impacts due to increased

transportation are not be addressed under either the ARA or other environmental legislation. The social impact of increased transportation are often summarized as: more trucks pass more people to deliver the same amount of aggregates. More trucks travelling longer distances consume more fossil fuels and release increased exhaust emissions into the atmosphere. While shipping aggregates by rail and water are important modes of aggregate transport, it is only practical for some specific locations or for some product types. It is not competitive in serving large sectors of the construction industry. This is due to the extra costs and delays incurred in handling, off-loading and reloading onto trucks for delivery to the job sites and the lack of transhipping facilities (e.g. wharves or rail yards) near the locations of aggregate demand. To minimize the cost and impacts of transportation it is therefore important that resource supplies be kept as close to market as possible.

Municipalities must have clear and reasonable policies to protect existing aggregate operations and to permit the establishment and expansion of pits and quarries. Identification and protection of mineral aggregate resources from competing and incompatible land uses is required if future options for the establishment of new extraction operations and an assured supply to meet current and future construction requirements is to be maintained. The future use of aggregates is not limited to the short term (e.g. 10 to 20 years), it is the longer term access to the resource for future generations that must be ensured.

Aggregate resource extraction is an interim land use. If appropriate progressive rehabilitation measures are combined with sequential land use planning, sites of extraction can be returned to a productive after use compatible with surrounding land uses. The PPS also helps to ensure that land use development on adjacent lands is compatible with mineral extraction operations and subsequent planned after uses.

1.2 History: Mineral Aggregate Resources Policy Statements (MARPS)

The provincial policy for mineral aggregates has a history extending back to 1976 and the recommendations of the Ontario Mineral Aggregate Resources Working Group (December, 1976). The Working Group called on the province to address: i) the need for more stringent regulation and rehabilitation of aggregate operations and ii) the need for planning of aggregate resources and the extractive industry. Hence, two components in mineral aggregate resource management evolved. Extraction activities became regulated under the Pits and Quarries Control Act (1976) which was superseded by the Aggregate Resources Act (1990 and amended 1997). Planning policy for protection of aggregate resources and including land uses on private property administered by municipalities under Section 3 of the Planning Act (1979) was first implemented as a ten point policy called "Mineral Aggregate Policy For Official Plans" (1979). The ten point policy was replaced by the "Mineral Aggregate Resource Planning Policy" (MARPP) issued by Cabinet on December 22, 1982.

The MARPP document was a formal declaration of provincial policy on planning for mineral aggregate resources, but even at that time, it recognised that other matters such as forestry, agriculture, housing, recreation and environment must also receive consideration in land use

planning at the municipal level. MARPP was superseded by the Mineral Aggregate Resources Policy Statement (MARPS), the first policy statement issued under Section 3 of the Planning Act on May 9, 1986. The MARPS contained all the essential elements of the MARPP and the ten point policy that it preceded it. MARPS was accompanied by an "implementation guideline" that to assist planning authorities in implementing the policy.

In 1995, MARPS was included in the Comprehensive Set of Policy Statements issued on February 15, 1995, and combined with new policies for minerals and petroleum resources. In 1996, the wording for the Provincial Policy Statement, 1996, was developed by the Ministry of Municipal Affairs and Housing (MMAH) in close consultation with MNR and other ministries. The current wording of the Mineral Aggregate Resources policies closely adheres to the original intent of MARPS, 1986, with some modifications and enhancement of resource and operation protection.

The intent of the PPS with respect to mineral aggregates remains basically the same as those policies for aggregates that proceeded. This training manual incorporates the essential elements of the former MARPS implementation guideline with revisions where needed to address the new policy environment.

2.0 EXPLANATION OF MINERAL AGGREGATES POLICY (2.2.3)

The policies for mineral aggregates have evolved over more than 20 years of study, discussion, and implementation at the provincial and municipal levels, including interpretation at Ontario Municipal Board (OMB) hearings and Consolidated Board hearings. The interpretations of the policies that follows are based on this history and experience gained over this time. The wording for each policy is shown in italics.

Policy 2.2.3.1 Mineral Aggregate Resource Availability

As much of the mineral aggregate resources as is realistically possible will be made available to supply mineral resource needs, as close to markets as possible.

Mineral Aggregate Resources

Mineral aggregate generally means gravel, sand, clay, shale, stone, rock or other material suitable for construction, industrial, manufacturing and maintenance purposes such as are defined under the Aggregate Resources Act. It does not include metallic or industrial minerals or other material prescribed under the Mining Act. When used in its broadest sense, mineral aggregate resources can be interpreted to include aggregates that have been combined with cement or asphalt and that become available for reuse or recycling. This would include used asphalt, used concrete and other construction debris that may be useful for recycling and as a replacement for raw or new aggregates.

As Much as Possible

This policy recognises that it may be impractical to ensure all aggregate resources be made available for resource use. For example, making all the resource available in a municipality that is underlain by vast deposits of aggregates could sterilise all other development and this is not the intent. The intent is that as much of the resource should be protected and kept available for use, while still taking into account other planning objectives. Municipalities with larger tracts of undeveloped aggregate deposits will be in a better position to plan for mineral aggregates and will be able to consider more options or strategies to provide for aggregate protection and availability when official plans are being developed or amended. Municipalities with limited or more heavily developed aggregate deposits will have fewer options. The objective is to balance societies need for the aggregate materials when considering other planning matters.

Available to Supply Mineral Resource Needs

Reasonable mechanisms need to be in place to ensure that mineral aggregate resources will be available to the consumer. Municipalities must develop planning, zoning and by-law approval

mechanisms that will provide a reasonable process to permit expansion or establishment of the aggregate extraction operations.

Aggregates are only available if they are or can be readily approved for extraction (e.g. within an approved extraction area) or are in a land use designation that provides a high degree of certainty that approval for extraction may be obtained. It is therefore preferable that as much of the known resource deposits as possible be included in an official plan land use designation that permits extraction and that criteria for the consideration of zoning for extraction operations also be clearly identified.

There are other considerations beyond access to mineral resource deposits that must be considered. For example, an area may have to import aggregates from more distant sources, due to limited resources within the municipality or because of a demand for a particular type of resource that does not occur locally. In these cases, to assure availability the municipality will have to look at other considerations such as the planning for transfer stations, protection of wharf facilities to support importation by ship. In addition, since considerable amounts of aggregates are processed into secondary products or can be reprocessed and recycled, municipalities should ensure these products and services are permitted and can be made available where the demand warrants and to assist with meeting the need for aggregates.

The need for aggregates must include the consideration of local, regional and provincial requirements. Aggregates are found only where they exist in the ground and cannot be found everywhere. Some municipalities may be major producers but consume only small amounts of these materials within their jurisdiction while other municipalities have little or no resource and rely on other areas to supply their aggregate needs. This policy recognises that aggregates are a commodity that has a market distribution that transcends local or regional needs and that there is a supply component that is provincial in extent.

Those municipalities with limited or more highly developed aggregate resources where current and forecast aggregate demand levels are high, will have to maximise the amount of the undeveloped resource that is to be protected and made available for future extraction. To accomplish this, it may be necessary for a municipality to conduct various types of studies including resource availability analyses and supply/demand forecasts. These studies must be conducted in the context of current land uses and environmental or other constraints that might limit access to aggregate deposits.

The Aggregate Resource Demand/Supply Model (State of the Resource Study, Planning Initiatives Limited, 1992) provides a methodology to look at supply versus demand. The study provided a series of approaches to estimate the availability of reserves in existing aggregate operations and for the development of forecasts for aggregate demand over the next 20 years at the regional and provincial level. These forecasts are updated from time to time in MNR's "Mineral Aggregates in Ontario, Overview and Statistical Update" released in February of each year. MNR has also developed a model (Vanderveer and Kinvig, 1996) to evaluate aggregate resource availability by analysing constraints to mineral aggregate resource development. This is discussed in more detail later in this document (Section 4).

As Close to Market as Possible

More trucks travelling longer distances increases the cost of construction projects, consume more fossil fuels and release increased exhaust emissions into the atmosphere. In order to minimize the cost of transportation and the social/environmental impact of truck haulage, the resource should be accessed as close as possible to where the materials are needed (i.e. near the market area). This also includes processed aggregates, secondary related products and/or recycled aggregate materials. The dominant mode of aggregate shipping will be by truck and while shipping aggregates by rail and water may be important modes of aggregate transport, it has to date not proved to be practical for other than a small percentage of the aggregate production in the province. In addition, rail and water transport are not practical for some specific locations or for some product types and have been demonstrated to be non-competitive when serving large sectors of the construction industry. This is due to the extra costs and delays incurred in re-handling and the distance of transhipping facilities (e.g. wharves or rail yards) from the locations of aggregate usage.

The mitigation of the environmental and social impacts of aggregate extraction operations are regulated by the legislative and regulatory requirements under the Aggregate Resources Act. There are however, social and environmental impacts related to truck haulage that increase with increased transportation distances. The impacts due to haulage cannot be addressed under either the ARA or other environmental legislation. The social impact of increased transportation is often summarized as: "more trucks past more people". Costs and impacts of long distance haulage are minimised by accessing those aggregate resources that are nearest the area where aggregates are consumed.

Policy 2.2.3.2 Mineral Resource Operations - Protection

Mineral resources operations will be protected from activities that would preclude or hinder their expansion or continued use or which would be incompatible for reasons of public health, public safety or environmental impact. Existing mineral aggregate operations will be permitted to continue without the need for official plan amendment, rezoning or development permit under the Planning Act.

Mineral Aggregate Operations

Mineral aggregate operations are defined in the PPS to include all lands within an area under license or permit issued under the Aggregate Resources Act (ARA). Any extraction on private land in parts of the province designated under the ARA must be in accordance with a licence issued under the Act. Aggregate permits are issued for the extraction of aggregates from Crown land or for extraction from lands under water, whether it be on private or Crown land.

Mineral aggregate extraction operations on private lands in areas not regulated under the ARA are also included under the planning policy provided the pit or quarry is an established operation and it is not in contravention of municipal zoning by-laws. Operation in this latter case includes the existing pit or quarry area and the adjacent land areas that are either owned by the operator or subject to an agreement between the operator and the land owner.

The definition also includes reference to: "associated facilities used in extraction, transport, beneficiation, processing or recycling; or the production of secondary related products.

Associated Facilities to Operations

A variety of associated facilities are critically important to the production and maintenance of the supply of aggregates and products derived from mineral aggregates.

Operations therefore encompasses the extraction of the aggregate material from the ground, but also on-site transportation, processing (crushing, screening, washing) and on-site facilities such as wash water recycling and settling ponds, weigh scales and stockpiling required for preparation of the product for sale. Extraction will involve the use of heavy machinery (excavators or loaders) for handling and loading. In addition trucks, off-road trucks or other forms of on-site transportation such as conveyor systems may be utilized. In the case of quarries, drilling and blasting is required to assist extraction. Processing would typically include crushing, screening, washing or other forms of specialized processing (e.g. beneficiation) to remove materials that would be deleterious to the final product. The operation may also include the blending in of various on-site or off-site or recycled aggregate materials.

The production of secondary or related products such as asphalt, concrete, cement blocks or bricks are also typical of many aggregate operations. In addition secondary processes for the recycling (crushing and blending) of construction or demolition debris (e.g. used concrete, cement blocks, bricks, bituminous asphalt) to produce construction aggregate materials may be involved. Recycling should be promoted within existing operations as a sound resource conservation measure and the promotion of sustainable resource use. Each tonne of used aggregate that is recycled has the potential to replace one tonne of new aggregate production. The establishment of secondary production or recycling facilities should be promoted either within or in close proximity to the aggregate operations or at other favourably economically located sites.

"Operation" as defined in the policy also includes the off-site storage or trans-shipment facilities and transportation systems. Protection of these facilities is required to ensure that aggregates materials may be moved freely to the area where the materials are to be used in construction. For example, some areas of the province lack adequate supplies of aggregates or of certain types of aggregate materials and rely on imports of aggregates from other parts of the province. These aggregates may be moved by ship, rail or long distance truck haulage. In the case of transport by ship, wharves and onshore storage facilities may be required near the extraction site and/or near the point of off-loading. Rail and long distance truck transport also require access to a local distribution system that may include storage facilities for trans-shipment purposes.

Protection from Activities that Preclude or Hinder

Aggregate extraction operations can be affected by incompatible land use developments in areas surrounding the extraction and processing activities. Extraction involves the use of heavy machinery and mechanised processing operations. In the case of quarries, blasting will also be required. Trucks are used to transport aggregates from these operations to the construction site. Even though the pit or quarry is operating within provincial standards, the extraction and processing activities generate an ambient level of noise, dust and/or vibration that is disturbing to some people. The truck traffic from aggregate operations adds to concerns about dust, noise and vibrations and raises further issues about traffic safety.

Typically aggregate operations were established in rural areas outside of urban and developing areas. However, with the expansion of urban areas into former rural areas, subdivisions, housing and other development have encroached upon existing operations. In some cases this has severely limited the ability of the aggregate operation to continue and in other cases forced the cessation of operations. In other cases while the operation has continued, local opposition to the operation has increased including legal challenges to the rights of the operator to continue. Many urban residents have moved to the rural area and this has caused conflicts not only with aggregate producers but with farming and other rural uses as an example.

The intent of the policy is to ensure that existing and future operations attain a level of protection from encroachment by incompatible land uses.

Municipalities must consider the impact of any planning decision that may affect future mineral aggregate operations and associated facilities. Physical separation of new development from mineral aggregate operations should be maintained to ensure the operations are protected from encroachment by incompatible development and have sufficient room for continued operation including access to undeveloped on-site resources. For new licenses issued under the ARA, setbacks are established following detailed studies, completed as part of the licensing process. Municipalities should implement planning policies that require other developments to observe adequate separation distances from aggregate operations. However, once an operation is established there must be some assurances that other developments around the operation do not occur that would put pressures on the operation to cease or to operate in such a manner that would reduce the reserves of aggregate that could be extracted. In areas adjacent to aggregate operations, minimum setback distances need to be maintained for other land uses that may be incompatible with extraction operations. For example, sensitive land uses should observe or exceed the setback requirements set out in the Ministry of Environment and Energy's "Guideline on Separation Distance Between Industrial Facilities and Sensitive Land Uses".

Associated facilities, such as asphalt and concrete batching plants are equally important to ensuring supplies of aggregate products are available and should be likewise protected. It is also important to maintain options for future long distance transport of aggregates. Therefore facilities capable of sending or receiving aggregates such as distribution yards, trans-shipping or storage facilities should also be identified and protected. Facilities located near harbours or existing rail

lines and in some cases the abandoned rail lines should be considered for their future potential to transport aggregates.

Existing aggregate operations and associated facilities are vital to the continuous supply of mineral aggregates since licensing and land use approvals may take upwards of 8 years. Protection of these operations assures that aggregates are available when needed in construction.

It is important to prevent the encroachment on aggregate operations by competing and incompatible land uses least the encroachment create pressures to either limit the operation or its hours of operation. Limits on the availability of aggregates from existing operations, puts increased demand on the other operations and takes valuable mineral aggregate resources out of production.

Expansion and Continued Use: Existing Operations Permitted to Continue

The policy recognises that as aggregates are extracted from one part of a pit or quarry that part of the property will become depleted and extraction must progress to other parts of a property if the operation is to continue to supply aggregates. An approved operation therefore includes the expansion of the operation within the area approved for extraction or onto adjacent lands or other lands that may be acquired or required for the continuance of the operation.

Once an aggregate operation is approved under the Planning Act, all operational activities are either regulated under the ARA or under other statutes such as the Environmental Protection Act and the Water Resources Act or the Municipal Act (where the ARA does not apply). Once a licence has been issued under the ARA, the operator has been given explicit rights to operate within established regulatory requirements and these rights may not be withdrawn except for violations under the ARA. One of the typical requirements, for example for a license to operate under the Aggregate Resources Act, is that the operation be a permitted land use. As such, the decision on land use occurs under the Planning Act (PA) before the license has been issued. Clearly the policy requires that the integrity of the license and the rights of the operator, as issued when land use approvals were issued, is to be protected. This intent has been further amplified by the statement in the policy that:

Existing mineral aggregate operations will be permitted to continue without the need for official plan amendment, rezoning or development permit under the Planning Act.

The intent is that all operational activities related to extraction operations that are controlled under the ARA or other provincial statutes are to be exempt from any requirement for additional planning approvals. Exceptions would include buildings or other structures that are not directly related to the operation or associated facilities.

The one exception to this is in areas of the province where extraction is not controlled under the ARA. For example extraction on private land in non-designated areas of the province is not controlled under the ARA. On these private lands municipalities may control extraction operations under the authority of the Municipal Act.

Policy 2.2.3.3 In Areas Adjacent To Known Deposits

In areas adjacent to or in known deposits of mineral aggregates, development which would preclude or hinder the establishment of new operations or access to the resources will only be permitted if:

a) resource use would not be feasible; or
b) the proposed land uses or development serves a greater long term provincial interest; and
c) issues of public health, public safety and environmental impact are addressed.

Know Deposits of Mineral Aggregates

A known mineral aggregate deposit is a deposit of sand, gravel, bedrock or other material, suitable for construction, industrial, manufacturing or maintenance purposes that has a sufficient quality and quantity of material to support extraction activities either as a mineral resource operation or for use as a wayside pit or quarry. Identification of deposits has occurred through various exercises including Aggregate Resource Inventory Reports and other mapping projects of the Ontario Geological Survey (MNDM). These documents and other sources of information for the identification of known deposits are more fully discussed under Section 3 of this manual.

Preclude or Hinder and Maintaining Access

The establishment of new operations can be significantly impacted by poor land use planning decisions that allow incompatible development within areas of known deposits or adjacent to these deposits. Aggregate resource operations regulated under the ARA have statuary requirements that prevents certain operational activities within specific setbacks from sensitive land uses such as residential development. If incompatible development, such as housing or subdivision project, is permitted on or adjacent to a known deposit this can result both in the sterilisation of resource or make it difficult (e.g. hinder) for a new operation to commence. If the incompatibility or proximity of the land use is severe enough, this could prevent (e.g. preclude) new operations and hence prevent the development of part or all of the aggregate deposit. In addition, there must be assurances that access to the deposit(s) is maintained. This means that deposits should not be encircled by incompatible land uses such that there is no physical access to the deposits (e.g. current access roads or other points of access to the deposit must remain viable) and there should be allowances for the provision of future access roads (areas for entrance and exit roads) and physical access to the resource for extraction purposes. In general incompatible land uses should not be permitted in or adjacent to known deposits.

The intent is that planning decisions should not restrict future access to or future use of the resource (e.g. aggregate resource extraction) within an area of a known deposit. The policy requires that municipalities and proponents of development assess the level of impact that any planning decision for development, either within or adjacent to a known deposit area, will have on mineral aggregate resource availability. Other land use developments should be planned so that access to known deposits are retained for continued exploration and future extraction.

Incompatible Land Uses

In general, other land uses may be considered a incompatible use if:

i) it results in a permanent commitment for a continued use in place of aggregate extraction;
ii) it includes the construction of facilities that cannot be easily moved or removed when an area is needed for extraction; and
iii) it will permit activities that will be in conflict with activities of aggregate extraction.

Development of incompatible land uses within areas adjacent to known deposits must ensure that future resource use is not hindered. If a deposit is not fully developed, the area of adjacency commences at the boundary of the deposit and extends away from the deposit. The area of adjacency will vary depending on the type of mineral aggregate resource. The setback or area of adjacency for a bedrock resource area, where future extraction would typically involve blasting, would be larger than that for a sand and gravel deposit. The definition of "adjacent" in an area of a bedrock deposit (as measured from the outside boundary of the deposit) should be a minimum of 500 metres or that used for heavy industry (as defined in the Ministry of Environment and Energy's "Guideline on Separation Distance Between Industrial Facilities and Sensitive Land Uses"). Incompatible development should be maintained at least 500 metres from a bedrock resource area. "Adjacent" in the case of a sand and gravel resource area would generally be defined as 300 metres since these operations do not require blasting.

In some cases, studies may be required to determine whether a development is compatible with a future aggregate operation or to develop appropriate setbacks for a incompatible development. In determining whether development is compatible or not, or for determining setbacks for development in areas adjacent to known aggregate deposits, it should be assumed for the purpose of the study, that there will be a future large extraction operation (appropriate to the type of deposit present) operating at capacity, at or near the closest boundary of the deposit adjacent to the proposed development.

Matters for considering whether or not development may preclude or hinder include potential noise, dust, traffic or ground water impacts of future aggregate operations, the character of the proposed land use (development) in relation to aggregate extraction activities and the cumulative impacts of the proposed development and future aggregate extraction. It is important that uses that may be more sensitive to disturbances created by aggregate operations (e.g. increased background levels of noise, dust, vibration or truck traffic) should be located some distance away from aggregate deposits and outside of areas that are adjacent to mineral aggregate deposits.

Resource Use and Feasibility

In an effort to avoid or minimize land use conflicts, new development or land uses that may be incompatible with future mineral resource extraction operations is to be discouraged. However the policy provides for exceptions to this rule. For example, the resource may not be there in sufficient quantities or quality to support future use for aggregate (e.g. either as an aggregate operation or as a wayside pit or quarry) or the resource may be in an area where aggregate extraction is unlikely to occur. In the situation where there has been adequate aggregate resource inventories already conducted and the presence of existing operations within the deposit area, there will be sufficient information to determine that there is a high potential for the presence of aggregate resources and no further study is needed. In other cases, the proponent of development may challenge this information, or there may not be sufficient data to verify the presence of an aggregate deposit that had been previously identified. In these latter two cases, the proponent of the development has the onus of conducting or ensuring the conduct of a detailed assessment of the aggregate resources to determine the presence or absence of aggregates on the site of the development.

Greater Long Term Public Interest

In some cases there may be no reasonable alternative location for a proposed incompatible use. This could result from a shortage of suitable locations that may physically accommodate the development. However, before development is approved in or adjacent to a known deposit area, it must be demonstrated the development meets a high level of public need and that alternative locations for the proposed development are not available. Some examples of high public need would include uses such as hospitals, major road or utility corridors, and sanitation works etc. Even in these cases, every attempt should be made to locate the development to areas away from or in such a manner that the impact on the aggregate resource is minimised or that as much of the resource is removed prior to or during the proposed incompatible development.

Municipalities are encouraged to develop stringent criteria in consultation with MNR and the aggregate industry and to apply the criteria in a rigorous manner. Official plans should protect deposits by identification in the Plan.

Due to the inter-regional and provincial importance of aggregates, before development that may preclude or hinder access to aggregate deposits it must be demonstrated that the proposed incompatible provides a significant advantage to the general public of the province and not just those in close proximity to the proposed development or in a particular community. In this context, the public interest should not be interpreted include opposition to aggregate extraction operations and associated activities.

Policy 2.2.3.4 Wayside Pits And Quarries And Portable Asphalt Plants

Wayside pits and quarries and portable asphalt plants used on public authority contracts will be permitted, without the need for official plan amendment, rezoning, or development permits under the Planning Act in all areas, except those areas of existing development or particular environmental sensitivity which have been determined to be incompatible with extraction and associated activities.

Wayside pits and quarries and portable asphalt plants are used on many public authority contracts such as bridge or road construction for provincial or municipal roads. These operations are temporary and are limited in duration and are generally limited to 18 months or the duration of the contract which ever is less. While there may be some short term impacts (e.g. noise or dust), these are mitigated by operational measures and the significant cost savings to the province and taxpayers. Public authority contracts often require large quantities of materials and sometimes materials of lesser quality than those available from commercial operations. Accessing these materials from smaller or undeveloped deposits promotes conservation of the higher quality materials available from commercial sources. Commercial sources are not always located near these construction projects and utilisation of nearby deposits as wayside sources reduces the cost of transportation and associated impacts of longer truck hauls.

Asphalt is also required for most road construction projects and must be delivered in a timely manner and within a certain temperature range if the paved surface is to be built to standard. Use of portable asphalt plants established near the construction project ensures that the quality of the asphalt going into the paved surface is maintained and that the cost of transportation is minimised and associated truck traffic reduced.

Policy 2.2.3.5 Rehabilitation

Progressive rehabilitation to accommodate subsequent land uses will be required.

The Aggregate Resources Act requires mineral aggregate sites to be rehabilitated. The details of those requirements may be found in Reg. 15, RRO 1990 and, more specifically, in the individual site plans accompanying each licence or permit. To maintain a streamlined approach, it is important that municipalities not duplicate these requirements. However, in areas of the province where the ARA does not apply to private lands (see areas designated by Reg. 15, RRO, 1990), municipalities are encouraged to incorporate provisions similar to those of the ARA into their planning requirements. This will ensure that appropriate rehabilitation measures are applied to extraction operations on private lands not regulated under the ARA.

Municipalities are encouraged to indicate the preferred subsequent land uses that would be compatible with long term planning goals for the area. This will ensure that the rehabilitation plans and in particular the phasing of the rehabilitation may be developed in a continuous (progressive) manner leading toward the desired condition (e.g. subsequent land use) for the site after extraction has depleted the reserves and related activities have been permanently shut down and the site readied for abandonment. Pro-active planning by the municipality to define

subsequent desired land uses on extraction sites, will assist pit and quarry operators in preparing their extraction sites for these subsequent land uses as well as the consideration of phasing the development in areas adjacent to aggregate deposits.

It is more cost effective to reshape the extracted pit or quarry area as part of the on going extraction operation. Large quantities of soil are often being moved out of the way during the extraction phase and if the material does not have to be handled a second time for rehabilitation, a large portion of the rehabilitation costs will be absorbed into the operational costs. It costs just as much to move material out of the way as its does for reclamation so it makes clear sense to do it only once where ever possible.

Rehabilitation is also dealt with in detail with Policy 2.2.3.6 d

Policy 2.2.3.6 Mineral Aggregate Extraction In Prime Agricultural Areas

In prime agricultural areas, on prime agricultural land, extraction of mineral aggregates is permitted as an interim use provided that rehabilitation of the site will be carried out whereby substantially the same areas and same average soil quality for agriculture are restored.

Agricultural lands and mineral aggregates are both important resources that need to be protected. This policy recognises that both these resources may at times be competing for the same land area. In most cases where mineral aggregates are located below prime agricultural lands, the lands can be rehabilitated to their former agricultural uses. In areas of mineral aggregate deposits that are overlain by current agricultural uses, agriculture may continue until such time as the aggregates are developed for extraction purposes. Once aggregate development occurs, extraction should be conducted using phased (i.e. progressive) mining and rehabilitation techniques, wherever feasible. This will reduce the period and the amount of land that is taken out of agriculture at any given time. Rehabilitation is a requirement of the ARA.

There will be instances where progressive and phased rehabilitation may be impractical or not possible until larger portions of the extraction area are more fully depleted of reserves. This may occur in pits where a variety of products from various parts of the pit must be extracted at the same time or where extraction is projected to involve the deepening of the pit or quarry floor.

In preparing official plans, the overlap between prime agricultural areas and deposits of mineral aggregates should be identified on the land use schedule. These agricultural policies do not apply to aggregate extraction in areas outside of prime lands within prime agricultural areas or on prime agricultural lands outside of prime agricultural areas.

Rehabilitation Above the Water Table

In prime agricultural areas, it is the intent of the policy that as much of the prime agricultural lands (Class 1,2 and soils) as possible be returned to agriculture as was previously the case before

extraction. It is recognised that some losses may occur due to the creation of slopes along pit or quarry faces, however this should be minimised where possible. In some cases it may be possible to improve on the agricultural capability by the removal of pre-extraction knolls or steep slopes or by decreasing stoniness during extraction and rehabilitation.

The Ministry of Natural Resources has published a number of pamphlets that outline the steps for successful rehabilitation back to agricultural. Please refer to: Agriculture and the Aggregate Industry (Industrial Mineral Background Paper 3) and Rehabilitation of Sand and Gravel Pits for Fruit Production in Ontario (Industrial Mineral Background Paper 6).

It is recognised that in some cases complete agricultural rehabilitation is not possible. There are two instances when complete rehabilitation to agriculture is not required as follows:

On these prime agricultural lands, complete agricultural rehabilitation is not required if:

a) there is a substantial quantity of mineral aggregates below the water table warranting extraction;

Extraction Below the Water Table

The applicant should demonstrate that there are sufficient aggregates available below the water table to support extraction. The following criteria should considered:

* the classification of the deposits of sand and gravel as either of primary, secondary or of tertiary significance or as a selected bedrock deposit as identified in Aggregate Resource Inventory Papers;

* if an ARIP has not been completed for the area, or if the ARIP data is out of date, there should be documentation submitted indicating what the equivalent ARIP ranking of the deposit would be;

* documentation that the quantity of the resource available below the water table is much larger in comparison to the amount of the resource available above the water table and that there is sufficient aggregate materials below the water table to warrant extraction.

In some cases, due to the physical location or the nature of the extraction site, rehabilitation back to agriculture will be impractical. The policy statement recognises that this may occur for some quarry operations as follows:

Extraction by Quarrying

On these prime agricultural lands, complete agricultural rehabilitation is not required if:

b) the depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible

There are numerous areas of the province of prime agricultural soils that overlay deposits of bedrock aggregates. In some cases, due to the low lying or flat topography of the proposed extraction site, and the proposed depth of extraction, rehabilitation to agriculture may be impractical. Criteria to be considered would include the proposed slope and height of the quarry faces, the proposed final depth of extraction; whether the site will be self draining or will become water filled; and any existing or potential soil, climatic or other limitations for maintaining agricultural viability following extraction.

Consideration of Alternative Sources

If an operator is proposing extraction below the water table, whether it is for sand and gravel or bedrock, then he must also include documentation to demonstrate that:

On these prime agricultural lands, complete agricultural rehabilitation is not required if:

c) other alternatives have been considered by the applicant and found unsuitable[1]; and

The policy includes a footnote that gives some specific examples that may be considered as alternatives to extraction below the water table. These other alternatives may include:

i. areas of lower capability agricultural lands;
ii. undeveloped areas designated for future urban uses or non-agricultural uses;
iii. other lands in prime agricultural areas where extraction below the water table is not necessary;
iv. lands adjacent to the existing pit or quarry.

Agricultural Rehabilitation to be Maximised

The last policy covers rehabilitation of agricultural areas that remain above the water table or in areas where rehabilitation back to agriculture may be possible as follows:

d) *agricultural rehabilitation in remaining areas will be maximised.*

Following underwater extraction on prime agricultural lands, rehabilitation of those areas of the extraction property that remain above the water table should ensure that agricultural use is restored to as large an area and as high an agricultural capability as is feasible. This would include phased and progressive rehabilitation wherever possible to minimize the impact on agriculture and that the rehabilitation and proposed subsequent land uses are compatible with agriculture.

3.0 DESCRIPTION OF MINERAL RESOURCES AND OPERATIONS

3.1 Nature and Geology of the Resource

The location and distribution of aggregates is directly linked to the geological deposition of these materials. Bedrock materials are often buried too deeply beneath other materials to be economically recovered. In addition not all bedrock materials are suitable for aggregate use. Sand and gravel materials have a distribution that is linked to the glaciation and deglaciation history of Ontario. The quality of sand and gravel for use in construction or other applications will vary depending upon the range of particle sizes (e.g. content of clay, silt, sand and stone) and the mineralogy (e.g. quality) of the particles.

Aggregate resources occur in very discreet and limited locations related to the geological history of the part of Ontario wherein they are found. Aggregates cannot be found everywhere.

3.1.1 Potential Sand and Gravel Resources

The resources most likely to be developed are those classified as deposits of primary significance or deposits of secondary significance as identified in the Aggregate Resource Inventory Papers published by the Ontario Geological Survey, Ministry of Northern Development and Mines. A third category, referred to as tertiary deposits, may in some areas be important aggregate sources particularly in lieu of adequate quantities of primary or secondary deposits. Most licensed properties will occur within areas identified as either of primary or secondary significance.

Primary deposits

- generally contain sand and gravel materials that can be crushed and processed and
- provide a wide range of aggregate related products for use in the construction industry.

Secondary deposits

- contain high quality sand materials and
- typically have more sand than crushable gravel materials such are found in primary deposits.

Tertiary deposits

- normally consist of smaller deposits or
- are deposits of poorer quality materials (e.g. may contain a high quantity silt or clay content or other low quality mineral materials (e.g. mica, shale, siltstone) that limits their acceptability for use in construction.

In some areas of the province that are lacking in aggregate materials, some deposits that would be typically classified as secondary or tertiary deposits in resource rich areas would be elevated in their classification within the ARIP system of mapping. This recognizes the need to protect those resources that are available and also that where there is sufficient demand for aggregates, the higher costs of processing of poorer quality materials to remove the unacceptable materials (i.e. beneficiation) can be offset against the cost of trucking in materials from more distant sources. For example in the Chatham area of the province the sand and gravel deposits contain shale that limits their use in asphalt or concrete uses. Some operators in this area have used a heavy media separation process to remove most of the deleterious shale materials so their products can meet construction specifications. Similarly, a combination of washing, screening, crushing or blending with other aggregate materials are often used to reduce the content of the unacceptable mineral materials. Blending materials may be other higher quality aggregate materials either located on site or imported from other sources.

The distribution of the sand and gravel resources of primary and secondary significance occurring in the regional municipalities in the vicinity of the GTA are summarized on Table 3. In those regions with more primary and secondary resource areas, there is an increased expectation for recognition of the importance to protect known deposits of sand and gravel in these jurisdictions.

3.1.2 Potential Bedrock Resources

The potential bedrock resources consist of:

* limestone and dolostones that provide a full range of crushed stone, building stone and chemical stone products used in construction extensively throughout the region.
* shale of the Queenston Formation, a source of stone for use in brick, tile and clay sewer pipes; and
* the grey to red sandstone of the Whirlpool Formation, the source of a unique building and ornamental stone such as is used in the Ontario Legislative building.

Bedrock deposits are classified in ARIP reports as "selected bedrock resources" and represent those units of bedrock that have a potential for construction or industrial applications.

The distribution of potential bedrock resources in south central Ontario are summarized on Table 4 and indicates those regions where there should be an increased expectation for the level of importance for protection of bedrock resources in these jurisdictions . Most licensed quarries will occur within these bedrock units.

Table 3: Distribution of Sand & Gravel Resources - South Central Ontario

REGION/COUNTY	PRIMARY RESOURCES	SECONDARY RESOURCES	LICENSED PITS
Brant	9921	1077	1204
Bruce	1607	702	671
Dufferin	8117	6046	1131
Durham	13198	26296	3852
Grey	7917	11716	1501
Haldimand-Norfolk	877	1213	109
Halton	3037	3819	547
Hamilton Wentworth	2317	11289	130
MetropolitanToronto	0	0	0
Niagara	905	2724	209
Northumberland	2508	0	381
Peel	5354	6016	1236
Peterborough	3363	6140	1356
Simcoe	18599	24178	2554
Victoria	8649	11010	3239
Waterloo	9282	2313	1524
Wellington	9658	14214	1561
York	4721	17624	2036
Total - Sand & Gravel Resource Area	**110030**	**146377**	**23241**

(Area - hectares)

Table 4: Distribution of Selected Bedrock Resources - South Central Ontario

REGION/COUNTY	LIMESTONE	SANDSTONE	SHALE	LICENSED QUARRIES
Brant	336	0	0	0
Bruce	33934	0	0	398
Dufferin	12888	0	1219	0
Durham	0	0	0	329
Grey	60220	0	0	116
Haldimand-Norfolk	2912	0	0	641
Halton	21342	1164	5217	1213
Hamilton Wentworth	33291	0	0	573
Metropolitan Toronto	0	0	0	0
Niagara	15038	0	2580	757
Northumberland	0	0	0	0
Peel	2655	439	5515	412
Peterborough	31366	0	0	32
Simcoe	13730	0	479	954
Victoria	48008	0	0	557
Waterloo	1130	0	0	0
Wellington	2714	0	0	344
York	0	0	0	0
Total Bedrock Resource Area (Area - hectares)	**279564**	**1603**	**15010**	**6326**

3.2 Overview of the Mineral Aggregate Industries and their Regulation

3.2.1 Classification of Operations

Mineral aggregate operations regulated under the Aggregate Resources Act (ARA) can be generally classified into 3 main categories: i) those that remove unconsolidated materials (e.g. sand and gravel or clay) from land are classified as pits; ii) those that remove consolidated materials (e.g. bedrock) are quarries; and iii) extraction or dredging from lakes or streams. This classification is important, because it reflects differences in the potential for environmental or social impact associated with these different classes of operations.

Under the ARA, as recently amended, "pits" are further subdivided into:

a) those that remove materials from above the water table; and
b) those that remove materials from below the water table without reducing the level of the water tal

There are no known pits in Ontario that are lowering the water table in order to extract aggregates. There are severe logistical limitations prevent the lowering of water table in porous sediments such as sand and gravel deposits.

Quarries under the ARA subdivided into three categories. Those that remove bedrock materials from:

a) above the water table;
b) below the water table by first lowering the water table; or
c) below the water table without changing the level of the water table.

The Aggregate Resources Act regulates the extraction operations within pits and quarries on private property in those areas of the province designated under the Act and on all Crown Land or land under water (e.g. in lakes, rivers or streams) in the province.

The Municipal Act gives municipalities some limited rights to regulate aggregate extraction operations. However there is a specific provision within the ARA that prevents a municipality from regulating any aggregate operational activity that is regulated under the ARA.

There is private property in parts of the province where extraction is not regulated under the ARA. In these areas the municipalities are encouraged to apply standards compatible with the ARA to ensure that these operations are properly controlled.

3.2.2 Description of Extraction Activities

Approvals

An aggregate operation requires the extraction of the aggregate material from the ground. Prior to any extraction occurring all necessary planning and regulatory approvals must be obtained. This includes obtaining the ownership or rights to the aggregates on the site as well as getting the required land use approvals from the local municipality. In addition, an aggregate license from the province is required if the site is in that part of the province designated under the Aggregate Resources Act, or if the site is on Crown land an aggregate permit from the province is needed. An aggregate permit from the province is required for any removal or dredging of aggregates from any lake or stream bottom irrespective of ownership. On private property in areas not regulated under the ARA, municipalities may have established by-laws under the Municipal Act and the municipality should be contacted in this regards.

Site Preparation

Once the planning and regulatory approvals are in place, the pit or quarry site must be prepared for extraction. This will involve the clearing of vegetation in those parts of the operation where

extraction will commence as well as any topsoil or other overburden materials. These materials are usually stored in stockpiles or berms along the edge of the operation and preserved for use in rehabilitation of the extracted area.

Aggregate Production Activities

Pits:

In a pit above the water table, excavators or loaders will be used for extraction, handling and loading. Extraction in a pit below the water table will involve the use of backhoes, draglines or other forms of bucket or suction dredges and stockpiling to permit excess water to drain out of the sand and gravel. While some materials may be loaded directly onto trucks for transport to the job site, more usually the materials will be transported on-site (by loader, truck or conveyor system) to a central facility for further processing. Processing of sand and gravel will involve screening, crushing or washing or the combination of any three.

Quarries:

Extraction of bedrock in a quarry requires drilling and blasting to break up and loosen the rock so it may be extracted. If the quarry is situated in an area that has a high water table or below the level of the natural water table the water table will have to be lowered if extraction is to proceed by dry extraction. This will require the installation of one or more wells and the pumping of the ground water and the discharge of water for surface drainage into an area outside that to be extracted. While drilling, blasting and the removal of bedrock without lowering the water table is possible, it requires specialized blasting materials and techniques and is therefore not as economic.

Production of quarried rock requires the use of heavy machinery including off-road trucks and larger loaders. The quarried rock will often be subjected to more processing including successive crushing processes to reduce the large blasted (broken) rock fragments into smaller sizes suitable for screening, washing and final processing.

Operational Phasing:

As aggregates are extracted from one part of a pit or quarry and as parts of the property are depleted, extraction must progress to other parts of a property. An approved operation often includes detailed scheduling and phasing plans for order in which extraction and processing will occur throughout the life of an operation.

On-site Transportation:

In addition trucks, off-road trucks or other forms of on-site transportation such as conveyor systems may be utilized to move the materials from the point of extraction to a centrally located processing facility.

3.2.3 Processing and Associated Facilities

Processing Facilities

In both pits and quarries, on-site processing facilities such as settling ponds (to trap the fines from washing operations and saves the wash water for reuse in the washing plant), stockpiles, loading facilities and weigh scales will typically be required. In addition, specialized processing or beneficiation, will sometimes be used to remove materials that would degrade or be deleterious to the final product.

The operation may also include the blending in of various on-site or off-site or recycled aggregate materials. The use of off-site aggregate materials and the recycling (crushing and blending) of construction or demolition debris (e.g. concrete, cement blocks, bricks, bituminous asphalt) to produce construction aggregate materials is a significant resource conservation measure and should be promoted within existing operations.

Associated Facilities

A variety of associated facilities are critically important to the maintenance of the supply of products derived from mineral aggregates. *Mineral Aggregate Operation* includes:

"*associated facilities used in the extraction, transport, beneficiation, processing or recycling of mineral aggregate, or the production of secondary related products*".

An aggregate operation may consist of a series of processing facilities including screening plants, crushing plants, aggregate washing or other beneficiation processes such as heavy media separators used to remove deleterious aggregate materials. Some of these may be directly included in the primary operation or be established as separate processing facilities either within the extraction property or on an adjacent property or at another location. In addition, some specialized processes may be established for the handling and processing of used concrete, used asphalt or other inert construction debris for recycling back into aggregate products. Recycling is a significant resource conservation measure. For example, each tonne of used concrete or used asphalt that is recycled back into construction usage has the potential to displace one tonne of new aggregate extraction. Use of recycled aggregates however can not replace all new aggregate usage. There is insufficient used materials available for recycling purposes and it has been estimated that at best, recycling would replace on average only 5% of the demand for new aggregates. In some areas this percent will be higher, such as in metropolitan areas where there is a higher level of reconstruction activity and hence more construction debris available.

The production of secondary or related products are typical of many aggregate operations. The list of secondary related products may include: asphalt, concrete, cement blocks, bricks, dimension stone, roofing stone, blasting sand etc. It is important to promote the establishment of these uses in close proximity to the aggregate operations.

Associated facilities also include both on-site and off-site transportation, include on-site road networks, connecting entrances and exits to local roadways as well as local, regional and provincial roadways used as haul routes. Associated facilities may also include storage or trans-shipment facilities or modes transportation such as rail or water. Protection of these facilities is required to ensure that aggregates materials may be moved freely to the area where the materials are to be used in construction. For example, some areas of the province lack adequate supplies of aggregates or of certain types of aggregate materials and rely on imports of aggregates from other parts of the province. These aggregates may be moved by ship, rail or long distance truck haulage. In the case of transport by ship, associated facilities would include wharves and storage facilities either at the source and at the point of off loading. Rail and long distance truck transport may also require a local distribution system. For example, if the aggregates are not delivered directly to the point of use or it may have to be off loaded and stocked piled either for later use or for further processing or the production of secondary related products. In these cases the storage or trans-shipment facilities are associated facilities used in the transport or production of secondary products.

3.3 The Aggregate Resources Act and the Municipal Act

Mineral Aggregate Operations Designated Under the Aggregate Resources Act

The definition of mineral aggregate operations includes:

"lands under license or permit, other than for a wayside pit or quarry, issued in accordance with the Aggregate Resources Act, or successors thereto". Any extraction on private land in parts of the province designated under the ARA is regulated in accordance with a licence issued under this Act. Aggregate permits are issued for the extraction of aggregates from Crown land or for extraction from lands under water, whether it be on private or Crown land.

The operational aspects of aggregate extraction on private property are regulated for those areas designated under the Aggregate Resources Act (see Figure) and for all lands under water or on Crown Lands. The Aggregate Resources Act makes it clear that there is no municipal jurisdiction to regulate the operational activities directly related to extraction. The province has reiterated this position under amendments to the Act, approved in December of 1996. The province has complete jurisdiction over the issuance and control of aggregate extraction on Crown Lands or for lands under water.

The recent changes to this Act have considerable enhanced the process for approving licenses and permits for aggregate extraction, including improved standards for consultation, impact assessment, mitigation of impacts, compliance reporting and penalties for non-compliance.

Mineral Aggregate Operations Not Designated Under the Aggregate Resources Act

The definition of operation under the policy also includes aggregate extraction operations that are on private lands in areas not designated under the ARA and therefore not regulated by the ARA as follows:

"for lands not designated under the Aggregate Resources Act; [operation includes] established pits and quarries that are not in contravention of municipal zoning by-laws and including adjacent land under agreement with or owned by the operator, to permit the continuation of the operation".

The province does not regulate operations on private property in areas not designated under the Aggregate Resources Act although the province has indicated that it intents to designate the whole province when resources permit. In the meantime municipalities are encouraged to regulate operations on private in non-designated areas pursuant to the authority of the Municipal Act. To ensure a consistency of regulation for all operations in the province and to facilitate the transfer of regulation of these operations under the ARA when new areas are designated, municipalities should adopt a regulatory process for these operations that is similar to that under the ARA.

3.4 Industry/Community Liaison

Some municipalities have established successful joint industry/community liaison committees to address issues concerning active aggregate operations. The use of these committees is encouraged as an open forum to discuss and resolve local residents and community concerns about the operations as well as related activities such as truck traffic. An expanded role that includes planning for resource availability is encouraged. These committees may be jointly, municipally or industry led and should include representatives from local concerned community groups and local operators. The Ministry of Natural Resources will participate where appropriate but encourages active operators and the municipalities to take the lead roles on these committees.

4.0 EVALUATION OF MINERAL AGGREGATE RESOURCES

4.1 Description of Data Sources - Aggregate Resource Mapping

The Ontario Geological Survey (Ontario Ministry of Northern Development and Mines) has been conducting mapping of aggregate resources since the early 1970's. The results of aggregate resource mapping are published in a series of reports called "Aggregate Resource Inventory Papers" (ARIP's) and as Open File Reports. ARIP reports typically include 3 maps published at a scale of 1:50,000 that show the distribution of sand and gravel and bedrock deposits, along with a classification of selected resource areas in terms of sand and gravel resources of primary, secondary or tertiary significance and selected bedrock resources buried under less than 8m (25 feet) of overburden. Open File Reports have usually be released as preliminary reports which were intended to be superseded by the more formal ARIP reports. Open File Reports will contain much the same information as an ARIP but the maps will not be colored and some of the detailed tables found in an ARIP will be absent.

Over 141 ARIP's have been published, covering most areas of south central Ontario, including those areas surrounding the GTA. In addition there have been 18 Open File Reports prepared covering the eastern parts of southern Ontario and selected areas of northern Ontario.
The definition of mineral aggregates is derived from the Aggregate Resources Act, 1989 and as amended from time to time.

ARIP's and OFR's indicate the general location of resources but due to limitations in available information, differences in mapping approaches or access to resource areas for on-site investigations and sampling at the time a particular ARIP was compiled the areas identified as potential resource areas can not be considered definitive. The information should be carefully assessed in light of more recent investigations or other information that may be available.

Aggregate Resources Inventory Papers (ARIP's) and aggregate resource Open File Reports (OFR's) have not been completed for all areas of the province and additional sources of information will have to be accessed. These include other geological reports such as surficial, Quaternary or bedrock mapping or compilations of depths of overburden published by the Ministry of Northern Development and Mines, Ontario Geological Survey. Other sources of information include:

i. soils mapping (Canada Land Inventory); and
ii. water well records maintained by the Ministry of Environment and Energy. These logs are a record water well drilling operations and include a description of the materials (e.g. clay, silt, sand, gravel, rock etc.) intersected during drilling. that can be used by a municipality to develop an inventory of known locations of aggregate resources.

MNR can be contacted to identify the various information sources and can assist with its interpretation and application in municipal planning. In some cases the municipality may recognize that the data is not complete and may wish to undertake additional studies. These studies are described under Section 5.

The Ontario Ministry of Natural Resources has converted much of the hard copy ARIP map information into a GIS compatible digital format, concentrating on the major producing areas in and around the GTA. The ARIP information that is in a digital database will be accessible to municipalities for use in land use planning.

The techniques in the following sections of this report demonstrate the use of the digital data in a computerized manner however, these same techniques can be adapted for manual approaches of map and data manipulation in hard copy format using a similar overlay approach.

4.2 Identifying Significant Resources

One of the main issues in making planning decisions on aggregates, is the determination of how much aggregate resources are available for consideration of new extraction operations. Use of GIS enables the aggregate planning staff of the Ministry of Natural Resources to conduct studies of aggregate resource availability. There are a number of steps necessary when identifying significant resources. These steps include identifying:

i. the distribution of known deposits;
ii. and agreeing to common terminology
iii. limitations on accessibility to the resource
iv. environmental or social issues limitation

4.2.1 Distribution of Known Deposits and Existing Extraction Operations

The sand and gravel resources that are most likely to be developed are those classified as deposits of primary significance or deposits of secondary significance as identified in the ARIP's. Primary deposits contain sand and gravel materials that can be crushed and processed to provide a range of products to the construction industry. Secondary deposits contain mostly sand. The potential bedrock resources will be those that are nearest the areas of demand and those that are covered by the least amounts of overburden materials. The presence of existing operations and the types of these operations (e.g. pits or quarries) will often provide an indication not only of the potential for development of the resource but also important information on the nature of the resource and the types of future operations that may be anticipated in developing the resource.

4.2.2 Transition From Resources to Reserves

The terminology used in determining what constitutes a resource versus a reserve has created confusion for many people. This has been evident at land use planning hearings where inappropriate use has been made of ARIP data in attempts to show that there are either sufficient licensed reserves or that there are other areas where resources could be developed and that new licensing is not required in a particular area. Not all resources will be accessible or capable of being developed. Only those resources that can be readily accessed can be considered as reserves. To clarify the transition from aggregate resources to reserves, it is necessary to distinguish between the terms: resources; possible or potential resources; available resources; licensed resources; and proven aggregate reserves. The following definitions are provided to clarify the terminology.

Resource Areas

* are broad areas identified through general geological mapping and or broad aggregate investigations by provincial surveys and private industry; and
* typically provide no analysis of geological, environmental or land use constraints.

Potential Resource Areas

* have favourable geology for the discovery of aggregate deposits (e.g. likelihood of resource verified by the presence of existing pits or quarries);
* have been identified by ARIP's or other equivalent surveys and studies; and
* may include licensed resources with an unknown reserve potential.

Available Resource Areas

* have favourable geology for the discovery of deposits, often shown by the presence of existing aggregate operations;
* do not have any quality or quantity constraints that would preclude possible development;
* have no known regulatory constraints due to land use, social or environmental conflicts;
* have no known constraints that can not mitigated within an operational and economic perspective; and
* can be acquired (purchased or leased) and are economically feasible for development.

Licensed Resource Areas

* are areas licensed and known to contain aggregate resources;
* may include some areas with no aggregate resources or resources of unacceptable quality;
* includes resources that may be uneconomic to extract, process, or are unmarketable due to limitations in quality or quantity of materials present; and
* includes reserves unavailable for extraction due to environmental restrictions.

Proven Reserves

* occur within a legally existing operation such as the licensed portion of the pit or quarry that is approved for extraction, as indicated on the site plans issued under the Aggregate Resources Act;
* have a proven quality and quantity normally demonstrated through a professional geological assessment of the property, including extensive sampling, testing, and development of quality control measures to maintain quality during production and processing;
* can be economically extracted and processed to meet a variety of product requirements; and
* can be profitably marketed to supply a ready demand area within a reasonably economic haul distance.

The definition of "proven aggregate reserves" may be summarized to include those resources that are legally approved for extraction and that can be economically extracted, processed and marketed to supply a ready demand within a reasonably economic haul distance.

4.3 The Aggregate Resource Constraint Model (Estimating Availability)

Not all resource deposits are capable of being licensed and developed for aggregate production purposes. Prior to considering what resources are available to meet present and future requirements, it is important to recognize reductions in resource areas due to:

* the inherent limitations of the geological data describing the resource;
* current land uses and land use patterns; and
* socio-environmental constraints.

The Aggregate Resource Constraint Model identified in the following section is a guide to assist in determining resource availability.

There are a number of limitations that affect resource availability. Assuming there is a demand for the materials, the available geological information, the location, and the quality or quantity of the resource must be thoroughly analyzed to determine whether or not the resource has potential for being economically viable. Land use, environmental and societal concerns of extraction operations must be studied to ensure that these are not potentially limiting factors that might prevent development of a resource area.

To demonstrate the constraining effects of these factors on aggregate resource availability and to provide a tool to estimate the amount of resources potentially available in a municipality, OMNR has developed an "aggregate resource constraint model" and adapted it for use in a GIS environment.

The objectives of the aggregate resource constraint model are to:

* assess current land use constraints for application within selected municipalities;
* to produce an estimate of potential available resources after applying a reasonable set of land use and environmental constraints;
* to demonstrate the limitations on the availability of the resource for new aggregate resource development and assess the need for protection and access to the resource for future resource development.

The aim of using the model is to demonstrate how aggregate resource development is constrained by current land uses and environmental constraints and the impact of planning policies have on future resource availability. The model provides a tool to assist planning agencies in balancing society's needs for aggregates and environmental and social protection from extraction operations.

Step 1: Input of Geological Data (Potential Aggregate Resources)

The starting base for input to the model is the selection of the resources to be considered. The model uses those resources defined in the Aggregate Resource Inventory Papers as follows:

* Sand and Gravel Deposits of Primary Significance;
* Sand and Gravel Deposits of Secondary Significance;
* Selected Bedrock Resources (where applicable).

These are the resource areas that would typically be identified by MNR as being of provincial significance and requiring protection within Municipal planning documents and set aside as an area where extraction should be a permitted land use after taking into account current land uses and environmental protection measures.

The model can accommodate any screening information or any other parameter that can be mapped. For this presentation, it is assumed that there are resources present in sufficient quantity and of a quality to support economic production. Prospective aggregate operators would carry out detailed geological evaluations to delineate those parts of the resource areas with appropriate quality and quantities to meet their aggregate requirements. Therefore model as described herein, concentrates on current land uses and protection of environmentally sensitive areas. It can be used to focus exploration or aggregate protection activities into areas that have no prohibitive constraints and lesser very serious constraints, and to identify competing land uses in aggregate resource areas that may remain available for aggregate development.

Step 2: Analysis of Potential Environmental and Land Use Constraints

Land uses and areas of environmental sensitivity were compiled into a GIS database by the Ministry of Natural Resources. Sources of data included the municipal official land use plans, zoning by-laws and MNR natural resource and environmental protection information. The constraint data were summarized into three broad categories as follows:

* Pre-emptive Constraints
* Very Serious Constraints
* Competing Land Uses

Pre-emptive Constraints

Current land uses that sterilize or preclude access to the resource for future development or the resource have already been developed. They include the following designations and zoning in the official plan:

* residential;
* institutional;
* commercial;
* industrial; and
* extractive industry (areas of existing operations e.g. licensed under the Aggregate Resources Act).

Very Serious Constraints

These areas, while not pre-emptive in nature, do have environmental constraints or provisions for protection of features or values of Provincial Significance that may prevent or restrict aggregate development. This may could include some or all of the following:

* Environmentally Sensitive Areas and Open Space Designations;
* Areas of Natural and Scientific Interest (ANSI's) of Provincial Significance;
* Wetlands (Class 1,2 and 3) of Provincial Significance;
* Identified Wildlife Habitat (Deer Wintering Yards and Cold Water Fish Habitat);
* Conservation Authority Lands; and
* Agreement Forests or Mature Woodlots.

Competing Land Uses

In these are areas, future aggregate development is not normally precluded however, there may be some provincial, regional or local interests that must be carefully assessed or more complex mitigation measures adopted before licensing extraction is permitted. These constraints for this exercise included:

* ANSI's of Regional Significance;
* Agricultural Soils (Class 1, 2 and 3); and
* Wetlands (Class 3 to 7) of Regional Significance.

Step 3: Identification of Other Constraints to be Considered

Limitations in available data precluded the incorporation of some constraints within this demonstrated application of the model. The following is a partial list of some of the constraints that were not included in this demonstration exercise.

* constraints not identified at the time of this compilation (i.e. recent official plan and zoning changes);
* restrictions due to construction and fill control mapping;
* areas of habitat of rare, threatened and endangered species;
* housing on rural lands and appropriate setbacks;
* setbacks from residential and other incompatible land uses;
* lands under roads and utility corridors and associated setbacks;
* geological limitations of quality and quantity of the resource;
* minimum required land area for economic and operational development;
* land costs or willingness of owner to sell or lease rights to the resource;
* access to economic haul routes to service market/demand area; and
* proposed natural heritage system and connecting links between natural areas (e.g. greenbelts).

Step 4: Estimating the Amount of Resource Sterilized by Various Land Uses

The pre-emptive category was applied to each resource type independently and the area of resource remaining, exclusive of pre-emptive constraints, was defined and its area calculated. The very serious constraint category was applied next and the remaining area recalculated and the process repeated for the competing land use category.

Step 5: Calculate the Total Level of Constraints and Amount of Resource Remaining

In applying this approach it is important to analyse the result of applying each constraint and the overall combined impact of each group of constraints. All constraints need to be carefully evaluated, including any additional constraints that were not fully assessed during the analysis. All possible information should be incorporated so that as true an estimate of the resource availability may be determined.

Step 6: Re-evaluate Constraints Groupings to Ensure Adequate Resources Available

The results of applying Step 1 through Step 5 will varying from one municipal planning area to another. The distribution of resources is not even across the province and neither are the land use demands. Therefore the application of one level or a grouping of constraints in one municipality may have an entirely different impact than that in an adjacent municipality. In one municipal area, the calculation phase (Step 5) may indicate that the application all constraints still leaves the majority of the resource areas intact. However, in another municipality the same analysis may eliminate too much of the resource. Therefore it is necessary to analyse the impact of the application of each constraint in these situations and re-evaluate the constraint level to ensure adequate resources are protected for long term use.

Step 7: Summarize and Acknowledge Limitations

It will be difficult to establish a complete data set of all constraints, therefore any calculation of resource availability should always be considered only as approximate. Any areal calculation prepared in the above manner should be acknowledged has having these limitations and the summaries prepared should clearly indicated that the calculations are a representation that will always be in excess of what is truly available for future aggregate development.

5.0 ASSESSING IMPACTS OF ADJACENT DEVELOPMENT

Non aggregate related development that may preclude or hinder access to the mineral aggregate resource should not be permitted within or adjacent to areas of known deposits or adjacent to mineral aggregate operations.

5.1 Information Requirements

Where an application for development occurs on or within:

* 300[1] metres of a known unconsolidated deposit (e.g. sand, gravel, clay) or a mineral aggregate pit operation; or
* 500[1] metres of a known bedrock deposit or a bedrock quarry operation,

the applicant should be required to assess the impact of the proposed development on the mineral aggregate resource and the mineral aggregate operation(s).

This will require the applicant to provide the following kinds of information and analysis to the approval authority in order to assess the potential impacts on the aggregate resource.

5.1.1 Existing Aggregate Use Analysis

The applicant should describe the location and nature of existing aggregate operations. This includes:

* the outside limits all existing operations. The outside limits of such operations are usually defined as the limits of the licensed property in areas designated under the ARA. In areas not designated under the ARA, the outside limits comprise the existing pit or quarry area and the adjacent lands that are either owned by the operator or subject to an agreement between the operator and the land owner;
* the location of existing or past wayside pits or quarries, if known;
* existing and potential operational activities (e.g. washing and screening, crushing, stockpiling, blasting in a bedrock operation, asphalt processing, truck movements on-site and on adjacent roadways);
* associated potential impacts on adjacent lands (e.g. noise, dust, and vibration); and
* based on the above, the zone of influence of these operations and facilities.

[1] These are recommended distances. In lieu of information that will identify the a different influence area, these minimums or the minimums set out by MOEE standards should be applied. The municipality or the approval authority may wish to conduct studies or analyses to permit the development of different standards for defining adjacency.

5.1.2 Aggregate Resource Analysis

The applicant should identify the location of all known deposits outside of existing aggregate operations and include a description of the type of aggregate deposit. Known deposits of mineral aggregate resources are identified on maps (at scales of 1:50,000) contained in Aggregate Resource Inventory Papers (ARIP's), in Open File Geological Reports or other similar geological or geotechnical studies. The Ministry of Natural Resources (MNR) may be contacted to determine what information is available including:

a) the location and type of mineral aggregate resources located within the planning area;
b) current and forecast aggregate demands at the local, regional and provincial levels for the planning and surrounding areas; and
c) studies carried out on the identification and protection of areas of mineral aggregates located in the plan area.

The applicant and the approval authority may wish to rely on the information available from MNR or alternatively may wish to prepare more detailed information concerning:

a) the areal extent of the deposit(s);
b) the type of the deposit (e.g. bedrock, sand and gravel, clay);
c) the quality of the deposit (e.g. granular A, B, C) and its general suitability for use in construction or as an industrial material;
d) the quantity of the material (e.g. quantity total or on a per hectare basis)
e) the demand for the material within the local, regional and/or provincial market area.

In situations, where MNR information is determined to be too general or inaccurate, the applicant will be responsible for providing more detailed information that may be required. This would be through an evaluation of the resource potential of an area or site by means of a thorough geological assessment prepared by a person qualified to do these studies. This evaluation process and studies required are more fully discussed below.

5.1.3 Potential Impacts of Future Operations

Note, where aggregate deposits exist that does not have an existing aggregate operation, the applicant must assume that at some future date these deposits may be the location of a new aggregate operation. Therefore in assessing the compatibility of the applicant's development proposal with mineral aggregate extraction, the applicant must assume that activities associated with extraction will occur on these lands, at some point in the future.

Based on the knowledge of the nature of the aggregate deposits and activities of existing operations in similar types of deposits, the applicant must identify potential impacts of future operations and likely zones of influence if such operations were to be established (this is to include the expansion of existing operations).

5.1.4 Compatibility Analysis

The applicant must provide a summary of the type of land and the associated activities and structures or facilities that would result if the application is approved.

Known and potential land use conflicts that may occur if the application proceeds should then be identified. This would include:

a) direct sterilisation of mineral resources where buildings, structures or incompatible land uses will be located directly on top of a known mineral aggregate deposit;
b) land use conflicts resulting from incompatibility of the activities of existing or future aggregate operations and activities of the land use(s) resulting from the proposed development (application)
c) off site land use conflicts resulting from the competing demands of the two land uses (e.g. conflicts in road traffic, cumulative demand/impact on water resources)
d) increased potential for restrictions to the operation of an existing pit or quarry or a new aggregate operation (e.g. cessation of water pumping, additional setbacks for washing, screening and processing sites from the property boundary, public pressure to restrict certain activities within the operation).
e) increased difficulty in obtaining licenses to expand existing aggregate operations or to create new operations by the increased resistance of new residents in adjacent areas. Experience has shown that the increase of residential uses adjacent to aggregate production areas significantly increases the difficulty and cost of successfully processing new aggregate licence applications.

5.1.5 Mitigation Studies

Where it is determined that significant conflicts with existing and/or future aggregate operations may occur, the applicant will identify mitigation measures that must be used to reduce or eliminate any negative impacts. Such mitigation measures may include:

Identification of Development Restrictions in the Zone of Influence

Based on the potential land use conflicts identified in the compatibility analysis, specific building or activity restrictions may need to be applied in the zone of influence adjacent to an existing or potential aggregate operation (e.g. no habitable buildings permitted within x metres of a deposit or a licensed site.

Lot Relocation or Redesign

Where a consent or subdivision plan is involved, lots can sometimes be relocated or reconfigured to reduce potential conflicts with mineral resource interests. For example:

- a severed parcel in a consent application can be relocated to a portion of the remainder parcel further away from the mineral resource interest;
- lots in a subdivision next to a mineral resource interest can be enlarged to allow increased setbacks for buildings within the lot; and

- lots and open space blocks within a subdivision can be arranged to place the open space block between the lots and the mineral resource interest.

Establishment of Building Setbacks

Where a property is sufficiently large, the distance between the buildings and structures within the proposal and the mineral resource interest should be maximised through the establishment of building setbacks or envelopes.

Establishment of Landscape or Buffer Strips

A landscape strip consisting of vegetative planting and/or establishment of berms may be required along the portion of a property abutting the aggregate operation to reduce visual or noise related conflicts.

Establishment of Noise Attenuation Design Features

Where possible, buildings and structures should be designed to attenuate noise effects of adjacent aggregate operations.

Avoidance of Truck Traffic in Road Design

Where the option exists, access to public roads should be directed to portions of the road system less likely to be used by trucks transporting aggregate materials.

Where access to a truck route is anticipated, the applicant should examine means to reduce conflicts such as:

- paving roads where gravel is hauled
- controlled access through establishment of traffic lights
- properly designed entrance and exit ramps
- establishment of noise barriers along the portion of the road that abuts the development application.

Working with the Owner of the Aggregate Resource Operator

It is sometimes possible to work with the owner of the aggregate operation to identify things that the operator is willing to do to reduce impacts on adjacent land as follows:

- redesign of the phasing schedule to ensure mineral resource material close to the proposed development is removed first
- establishment of landscape buffers and berms along portions of the operation closest to the proposed development
- modification of internal operations to reduce dust or noise generation
- set schedules and advance notice of high impact activities such as blasting

Obviously the operator will do these things if they are of minimal costs to him or her. The applicant should be willing to consider assuming these costs where his or her development proposal is the prime beneficiary.

Removal of the Aggregate Prior to Development

It may be possible, though use of a wayside permit or a short term extraction operation, to remove the aggregate resource on the site or in the adjacent lands prior to construction of

services, buildings and structures that would otherwise sterilise the resource. This would require co-operation between the applicant, adjacent landowners, the municipality and the aggregate industry.

5.2 Evaluation Process

Based on the information provided in subsection 5.1, the approval authority must determine:

* if there is sufficient information to establish whether the proposed use will preclude or hinder access to aggregate resources, including both existing and potential future operations;
* if building or activities need to be restricted or prohibited within certain distances from existing operations or known deposits;
* if mitigation techniques can be applied to eliminate or reduce conflicts between the extraction of aggregates and the proposed development.

5.3 Implementation

Based on these determinations, the planning authority will be in a position to make one of the following four decisions:

* determine that the development will not have any negative impact on the aggregate resource;
* determine that the development has a negative impact on the resource, but these impacts may be overcome by appropriate modifications to the design or construction phase and/or the adoption of appropriate mitigation techniques;
* determine that the development will result in negative impacts that cannot be overcome by planning, design or construction changes; or
* determine there is still insufficient information to determine negative impacts.

After compilation of the evaluation, the approval authority will be in a position to accept or deny the application and to require conditions where appropriate.

5.4 Protection of Mineral Aggregate Resource Waived

Mineral aggregate extraction is a locationally restricted land use. Pit and quarries must locate where the mineral aggregate resource exist in sufficient quantity and quality to meet the demands of Ontario's construction industry. The closer they are to the market place, the better, since the bulk of the cost of aggregates is related to the cost of transporting the material to the construction site.

Unfortunately, aggregate deposits are limited in extent and as time goes on, these resources become less and less available due to depletion and sterilization by increased presence of incompatible land uses.

Based on these considerations, in the majority of situations, the need to protect the mineral aggregate resource should take precedence over other land uses that are incompatible with aggregate operations.

It is recognised however, that there will be situations where a municipality will want to approve development applications that will result in hindering or precluding the use of aggregate resources. However in doing so, the municipalities are encouraged to restrict such situations to those where it is deemed absolutely necessary and in keeping with the intent of the Provincial Policy Statement.

Such situations may include:

1. situation where the information on the quality, quantity and location of the aggregate resource in the context of market demands in the local, regional and provincial demand make it highly unlikely that an aggregate operation would ever be considered;
2. situations where the establishment of an aggregate operation is unlikely due to environmental, public health or public safety considerations that presently exist in the area;
3. the applicant has established that the proposed land use or development serves a greater long term public interest and that there is no reasonable alternative location for the proposed land use.

APPENDIX A

The History of the Mineral Aggregate Resources Policy

The "Mineral Aggregate Policy For Official Plans", often referred to as the "ten point policy for aggregates" was approved on September 11, 1979, by the Minister of the day for Natural Resources. These policies require:

- that parts of the province with resources should share the responsibility for future demands at a reasonable cost including environmental, transportation and energy costs;
- that licensed pits and quarries must recognised and protected by designation in official plans;
- that areas of high aggregate potential should be identified and designated regional/county and local official for possible future extraction to meet future provincial needs;
- that uses of land that would not permit future extraction, including residential, commercial and industrial development, not be permitted in areas of high aggregate resource potential;
- that agriculture and forestry would be permitted in resource areas;
- that wayside pits and quarries should have special approval provisions to allow their opening without amendment to the plan or implementing zoning by-laws;
- the Ministry of Natural Resources should have the ultimate authority to ensure adequate supplies are available;
- official plans should not be approved until they ensure adequate municipalities will have available their fair share;
- that the Province require rehabilitation after extraction to restore the land to its former use or condition or another that is compatible with the use of adjacent land.

The "ten point policy" was superseded by the Mineral Aggregate Resource Planning Policy (MARPP), a provincial policy on planning for mineral aggregate resources issued by Cabinet on December 22, 1982. The MARPP document was a formal declaration of provincial policy on planning for mineral aggregate resources, but also recognised that other matters such as forestry, agriculture, housing, recreation and environment must also receive consideration in land use planning at the municipal level.

MARPP was superseded by the Mineral Aggregate Resources Policy Statement (MARPS), the first policy statement issued under Section 3 of the Planning Act on May 9, 1986. The MARPS contained all the essential elements of the MARPP that it superseded.

The policy stated that the policy "does not supersede or take priority over other policy statements or other policy for specific areas of the province. It recognised that mineral aggregates are vital to Ontario's economy and that although potential reserves exist in many parts of the Province, there is a reduction in the availability of aggregates. It included specific policies to ensure that regard to the importance of mineral aggregates was taken into account in any related planning action.

MARPS recognised aggregates as a non-renewable resource and included eleven policies including two general policies that all land use planning and resource management agencies have regard to the availability of aggregates to meet future local, regional and provincial needs and that any planning jurisdiction identify and protect as much of its mineral aggregates as possible in the context of other land use planning objectives to supply this need.

Official plans were to identify and protect existing operations from incompatible land uses; protect as much of its mineral aggregate resources as realistically possible, in the context of other land use planning objectives; and establish policies to permit non-aggregate land uses only in areas were extraction would not be feasible or where the proposed development serves a longer term interest of the general public than aggregate extraction or where the development would not preclude or hinder future extraction.

A clear and reasonable mechanism to permit the establishment or expansion of pits and quarries were required including an outline of any official plan or zoning by-law amendments and specific information required for consideration of the amendment application and to ensure protection of existing land uses and the environment.

Wayside pits and quarries were to be permitted without requirements for plan or zoning by-law amendment or of particular environmental sensitivity which are designated in the plan.. Rehabilitation to an after-use compatible with long term uses permitted in the plan may be required.

Zoning by-laws were to regulate existing pits and quarries so that they were a permitted activity with no other activities permitted that would be incompatible with these operations. Wayside pits and quarries all permitted in all zoning categories except areas of existing development or areas of particular environmental sensitivity.

The policy was accompanied by implementation policies and a set of implementation guidelines to assist with policy interpretation. The original MARPS met with good success at various OMB hearings to ensure resource protection in official plans and assured resource availability through licensing under the Aggregate Resources Act. Hearing Officers demonstrated a strong interest in all components of the original statement, including the background, principles, policy and implementation guidelines.

MARPS was considerably abbreviated in the Comprehensive Set of Policy Statements issued on February 15, 1995, by collapsing various policy statements together (e.g., mineral aggregates, mineral and petroleum combined) and eliminating references to planning processes.

The wording in the Provincial Policy Statement, 1996, was developed by the Ministry of Municipal Affairs and Housing (MMAH) in close consultation with MNR and other ministries. The current wording of the Mineral Aggregate Resources policies more closely adheres to the original wording in MARPS, 1986, with some modifications and enhancement of resource and operation protection.

Appendix B

Demonstration of the Aggregate Resources Constraints Model

The model uses an overlay approach. Pre-emptive constraints are considered first and the area of overlap with the potential resource area is calculated and then subtracted from the total area of potential resources prior to the application of the constraints. The next levels of constraints (e.g. very serious and competing land uses) are each applied in turn to the remaining resource area in a similar manner and the remnant resource areas recalculated as each constraint was applied.

The model was applied to the analysis of constraints for two municipalities: the Town of Whitchurch-Stouffville and the Township of Manvers. These two examples illustrate the impact that planning decisions have on aggregate resource availability. The two Official Plans, plus zoning by-laws and amendments, provided the greatest amount of detail with respect to current land use patterns. The municipal land use data was combined with other data such as the environmental protection interests of OMNR and other agencies.

The two municipalities of Whitchurch-Stouffville and Manvers were selected because:

* each contain large areas of potential sand and gravel resources of both primary and secondary significance; and
* have available reasonably up to date municipal planning information;
* they would provide a comparison between an urbanized municipality and a rural municipality.

The primary and secondary deposits within the Town of Whitchurch-Stouffville are affected by pre-emptive, very serious and competing land uses which are summarized in Table A1. Pre-emptive constraints eliminate 31% of the primary and 21% of the secondary resource areas. Cumulatively when all constraints are combined, over 97 percent of the primary and 80 percent of the secondary deposit areas identified on the ARIP mapping for Whitchurch-Stouffville are affected.

Table A1; Summary of Potential Resource Area Loss to Land Use Constraints Town of Whitchurch-Stouffville and Township of Manvers

Municipality/Resource Type	Pre-emptive Constraint	Very Serious Constraint	Competing Land Uses	Cumulative Loss Area
Whitchurch-Stouffville				
1. Primary	31.00%	7.83%	58.21%	97.04%
2. Secondary	20.93%	38.84%	20.73%	80.50%
Township of Manvers				
1. Primary	20.21%	14.37%	1.49%	36.06%
2. Secondary	8.80%	29.74%	6.65%	45.19%

The primary and secondary deposits within the Township of Manvers (Table A1) are similarly affected. Pre-emptive, very serious constraints and competing land uses cumulatively affect 36 percent of the primary and 45 percent of the secondary deposit areas identified on the ARIP mapping. A detailed breakdown of the individual constraint elements is provided for the Town of Whitchurch-Stouffville in Table A2 and for the Township of Manvers in Table A3.

The resource area remaining available as unconstrained or within the area included with "competing land uses" particularly within Whitchurch-Stouffville is inadequate to sustain aggregate resource development required to meet the forecast demand for aggregates. It is therefore concluded that it is important that access to those areas identified within the very serious constraints category remain available for consideration of future extraction if the long term demand for aggregates is to be met.

The difference in cumulative constraints for these two areas is interpreted to result from an increase in competition for the limited land base in the more urbanized Whitchurch-Stouffville area.

Table A2: Aggregate Resource Constraint: Town of Whitchurch-Stouffville

Constraint Type	1. Primary Deposits			2. Secondary Deposits		
	sq. km.	hectares	% of "1"	sq. km.	hectares	% of "2"
a: Potential Resource Area	**21.79**	**2178.8**	**100**	**64.54**	**6454.2**	**100**
Preemptive Land Uses						
Licensed pits	4.79	478.7	22	0.26	26	0.4
Residential	1.26	125.8	5.8	10.32	1031.8	16
Institutional	0.08	8.3	0.4	0.04	3.7	0.1
Commercial	0.77	76.9	3.5	2.61	260.6	4
Industrial (excludes pits)	0	0.3	0	0.57	56.8	0.9
b: Subtotal	**6.75**	**675.4**	**31**	**13.51**	**1350.8**	**20.9**
Very Serious Constraints						
Environmental (ESA)	0	0	0	0.18	17.6	0.3
Open Space	0	0.3	0	15.09	1509.4	23.4
ANSI's - Prov. Sign.	0.34	33.6	1.5	0.61	60.9	0.9
Wetlands- Prov. Sign.	0	0	0	0.05	5.4	0.1
Wildlife Habitat	0	0	0	0	0	0
Conservation Lands	0	0	0	0.08	7.7	0.1
Agreement Forests	1.92	191.7	8.8	25.62	2561.8	39.7
Mature Woodlots						
c: Subtotal	**1.71**	**170.5**	**7.8**	**25.07**	**2507.1**	**38.8**
Competing Land Uses						
ANSI's-Regional Sign.	0.16	15.6	0.7	0	0	0
Agriculture, Class 1-3 Soils	18.88	1888.4	86.7	23.2	2319.7	35.9
Wetlands-Regional Sign.	3.89	388.6	17.8	1.37	136.8	2.1
d: Subtotal	**12.68**	**1268.4**	**58.2**	**13.38**	**1338**	**20.7**
Summary	21.14	2114.3	97	51.96	5195.9	80.5
e: Total Constraints (b+c+d)						
f: Resources Remaining (a-e)	**0.64**	**64.5**	**3**	**12.58**	**1258.3**	**19.5**

Note: For Table A2 and Table A3, "a" is the Potential Resource Area prior to applying any constraints. Subtotals have been adjusted to discount for areas of mutual overlap between constraint types and the numbers rounded to one decimal point so the totals may not add up to 100. Source: Ministry of Natural Resources.

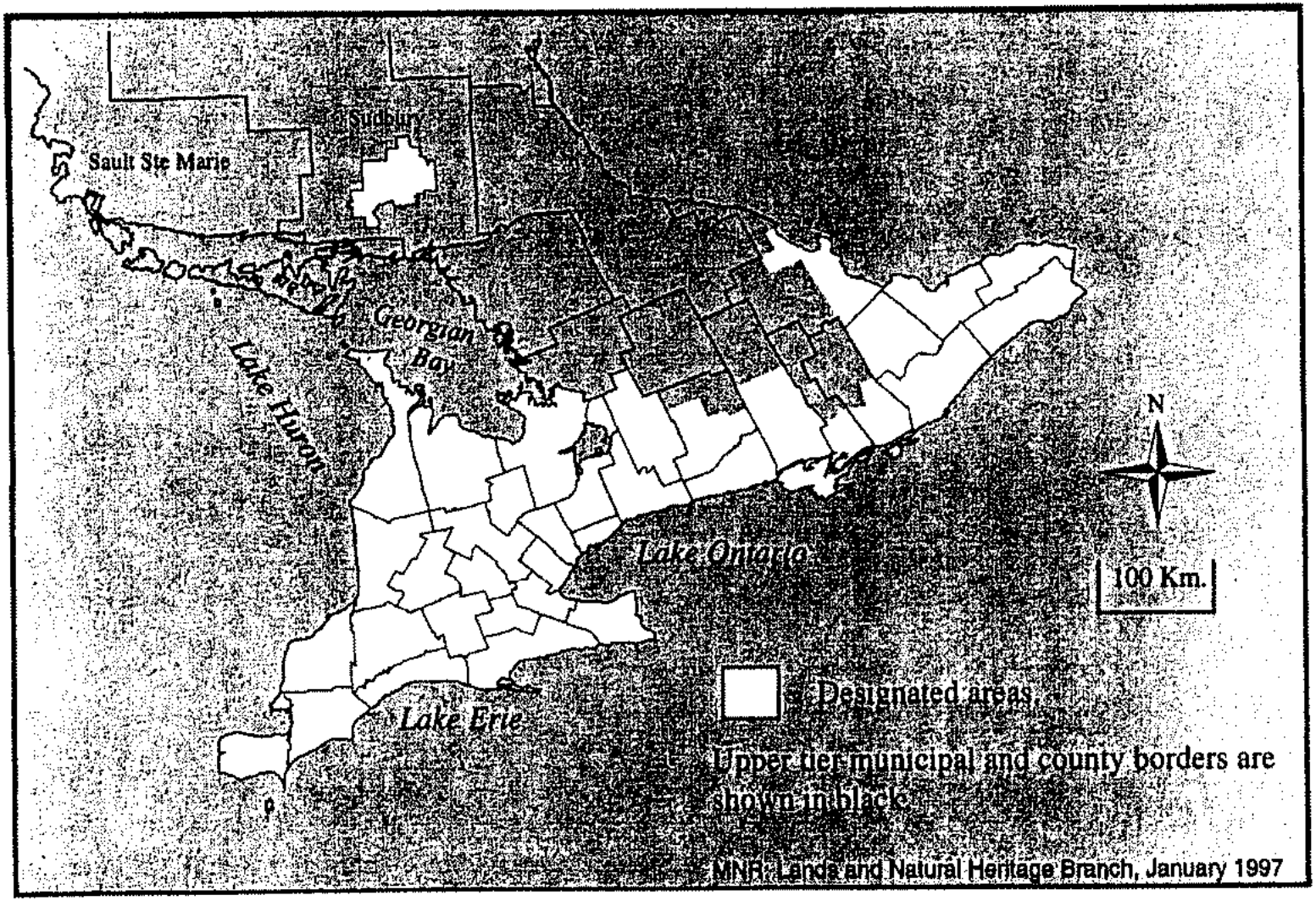
Table A3: Aggregate Resource Constraint: Township of Manvers

Constraint Type	1. Primary Deposits			2. Secondary Deposits		
	sq. km.	hectares	% of "1"	sq. km.	hectares	% of "2"
a: Potential Resource Area	**30.00**	**2999.7**	**100.0**	**48.91**	**4890.5**	**100.0**
Preemptive Land Uses						
Licensed pits	4.53	453.0	15.1	3.64	364.2	7.4
Residential	1.05	104.8	3.5	0.21	20.9	0.4
Institutional	0.17	17.4	0.6	0.03	3.2	0.1
Commercial	0.03	2.9	0.1	0.40	40.2	0.8
Industrial (excludes pits)	0.40	39.6	1.3	0.26	25.6	0.5
b: Subtotal	**6.06**	**606.2**	**20.2**	**4.30**	**430.5**	**8.8**
Very Serious Constraints						
Environmental (ESA)	0.00	0.0	0.0	0.00	0.0	0.0
Open Space	0.60	59.8	2.0	8.06	806.4	16.5
ANSI's - Prov. Sign.	3.53	353.3	11.8	3.58	358.2	7.3
Wetlands- Prov. Sign.	0.22	22.0	0.7	1.40	140.3	2.9
Wildlife Habitat	0.00	0.0	0.0	0.00	0.0	0.0
Conservation Lands	0.00	0.0	0.0	1.68	167.9	3.4
Agreement Forests	0.52	51.6	1.7	2.77	276.8	5.7
Mature Woodlots	0.00			0.00		
c: Subtotal	**4.31**	**431.0**	**14.4**	**14.54**	**1454.2**	**29.7**
Competing Land Uses						
ANSI's-Regional Sign.	0.00	0.0	0.0	0.00	0.0	0.0
Agriculture, Class 1-3 Soils	0.45	44.8	1.5	7.70	770.5	15.8
Wetlands-Regional Sign.	0.00	0.0	0.0	0.00	0.0	0.0
d: Subtotal	**0.45**	**44.6**	**1.5**	**3.25**	**325.4**	**6.7**
Summary						
e: Total Constraints (b+c+d)	**10.82**	**1081.8**	**36.1**	**22.10**	**2210.1**	**45.2**
f: Resources Remaining (a-e)	**19.18**	**1917.9**	**63.9**	**26.80**	**2680.4**	**54.8**

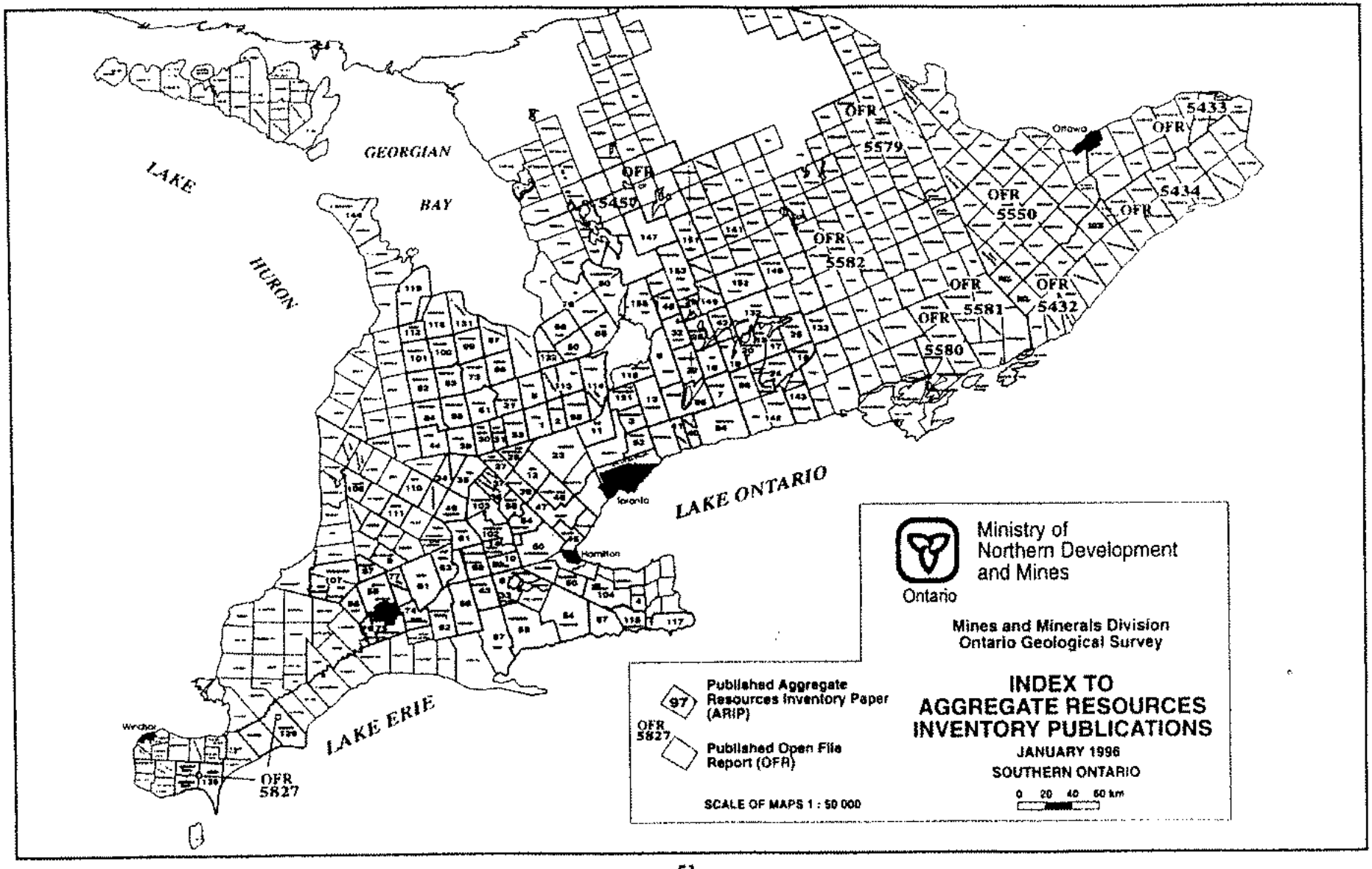
Appendix C

Maps and Figures

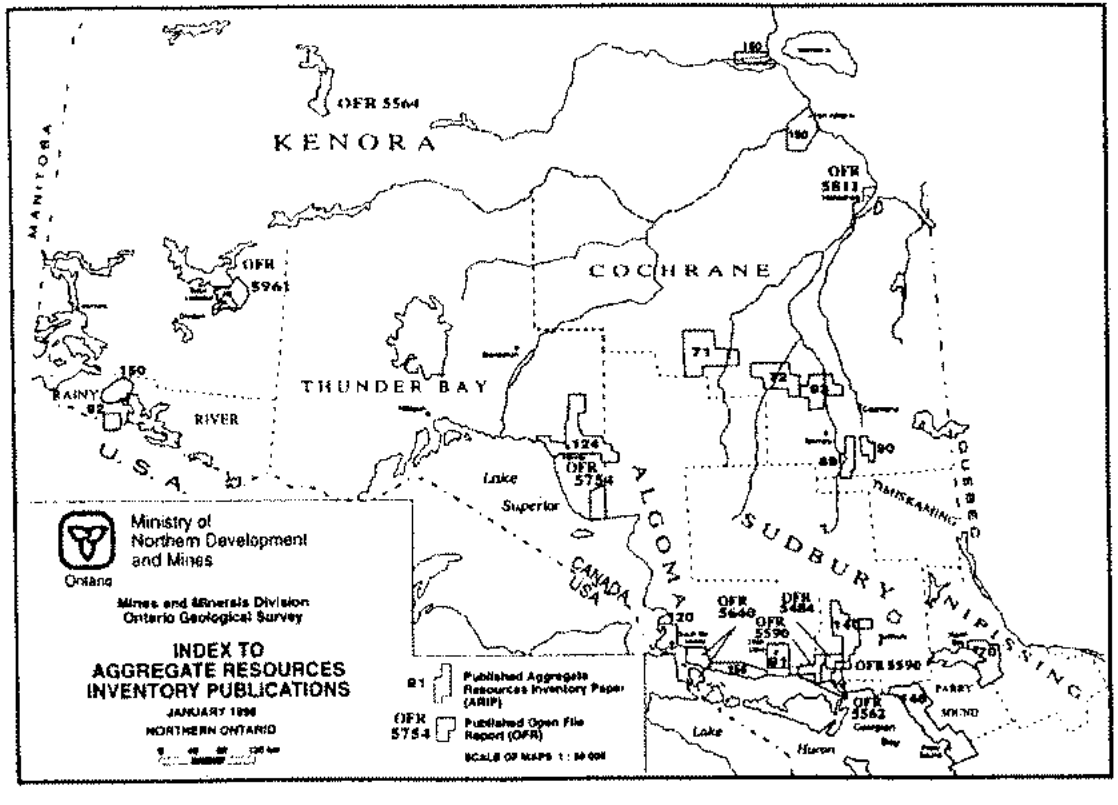
Map 1 : Areas Designated under the Aggregate Resources Act



Map 2 : Index to Aggregate Resource Inventory Publications - Southern Ontario



Map 3 : Index to Aggregate Resource Inventory Publications - Northern Ontario



141 ARIP'S , 18 OFR'S

Figure 1 : Aggregate Licensing Generic Site Plans - Existing Features

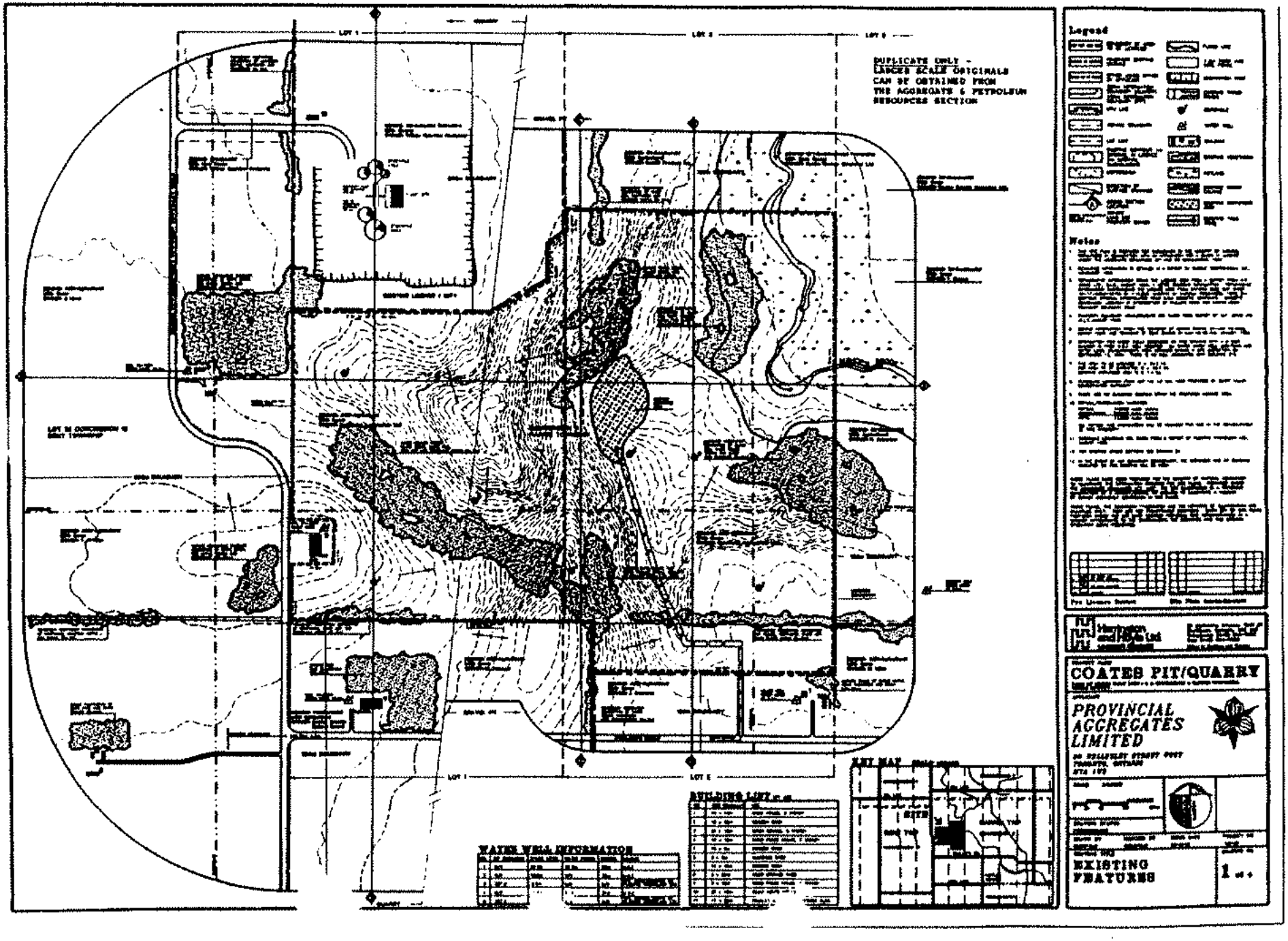


Figure 2 : Aggregate Licensing Generic Site Plans - Operation Plan

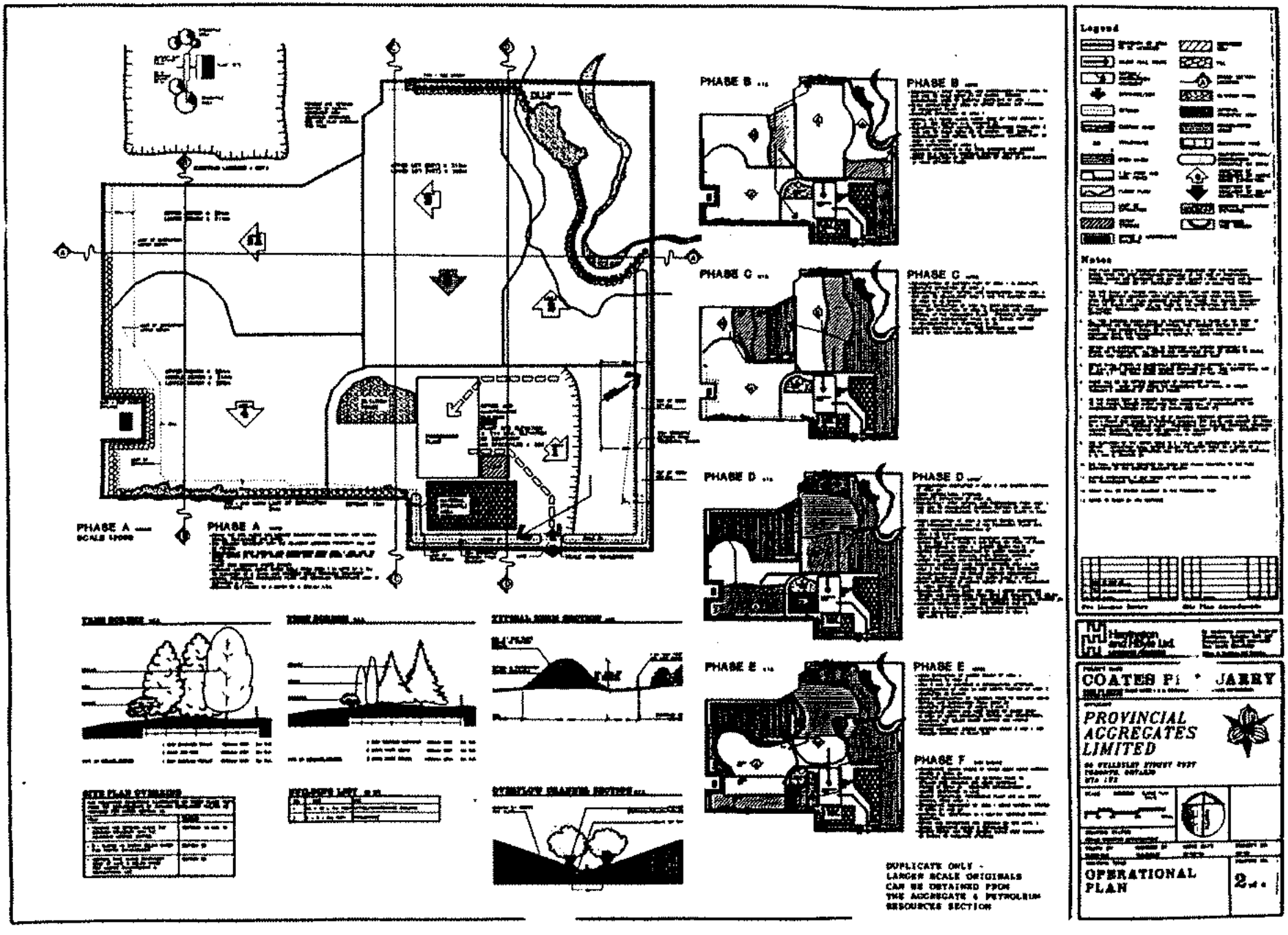


Figure 3 : Aggregate Licensing Generic Site Plans - Progressive and Final Rehabilitation

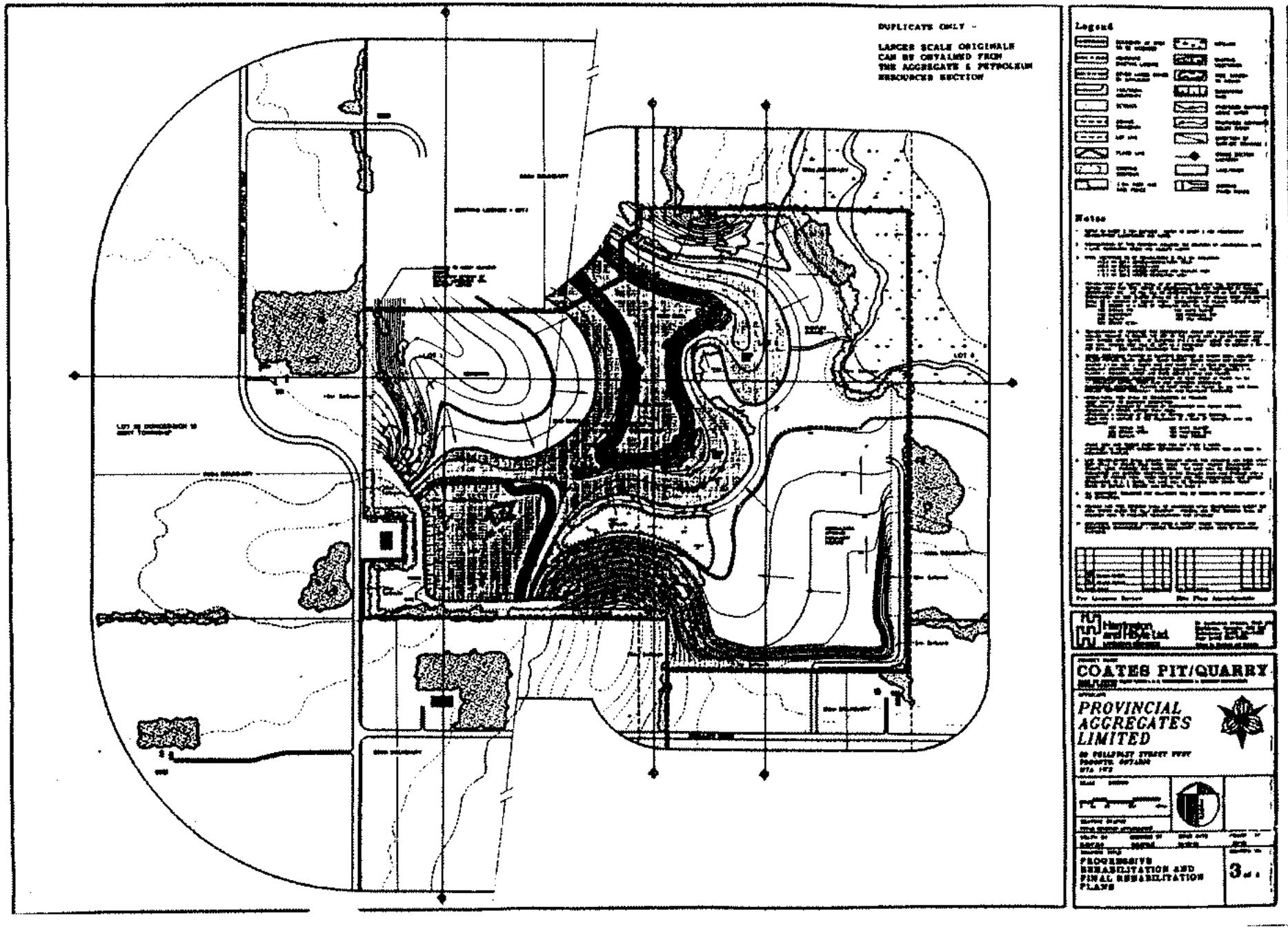


Figure 4 : Aggregate Licensing Generic Site Plans - Cross Sections

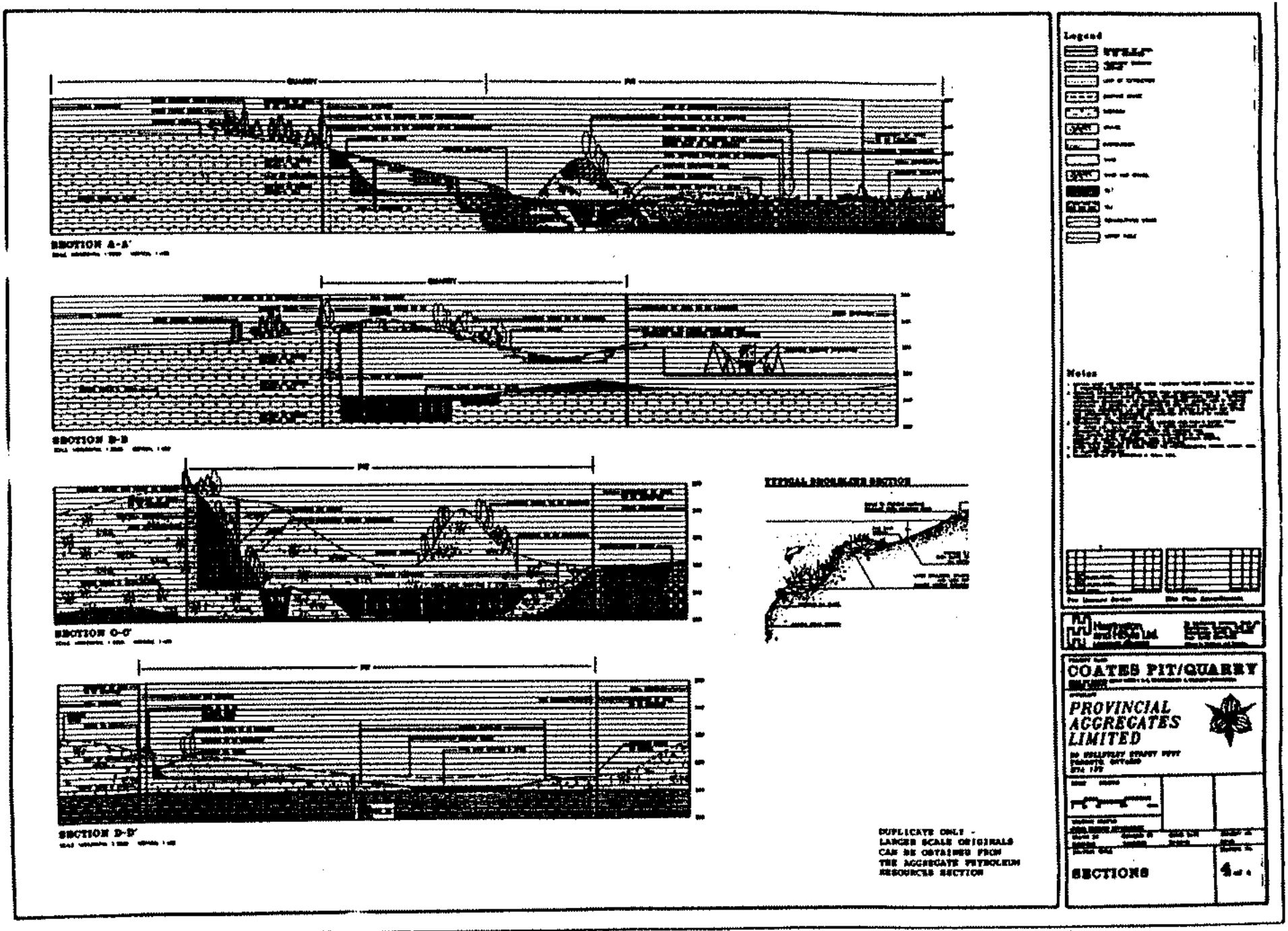


Figure 5 : Aggregate Permits Generic Site Plans - Category 1

Pit/Quarry (name or no.)

Aggregate Permit Site Plan

Site Plan Category: 1

Permit/Pit No. 4578

Lot: 5 Concession: 2

Township: Agro

Permittee: John Arrow Ltd.

Address: 3744 Marsh Dr., Sudbury, Ont.

P0M 3A0

I acknowledge and shall carry on my operation in accordance with the site plan upon which my aggregate permit is based.

Signature of Permittee

Key Plan

copy of 1:50 000 map or similar map to show location

Scale:

Site Plan Notes

Existing uses: existing pit and forested

Zoning: Minister Zoning Order; zoned RU allows aggregate extraction

Estimated life of pit: 30 years Permit area: 42.2 hec. Area to be developed: 27.5 hec.

Boundary located on ground by: 3" x 3" x 4' wooden post at corners and red painted trees

Excavation depth: 21m Final elevations: 91m in relation to bench mark

Drainage: natural percolation

Existing and proposed buildings: weigh scales; storage shed 8m x 6m

Fencing: presently along portion of front section; will not be fenced unless required by Inspector for identification and safety

Gates: erected and maintained at the entrance

Strip plan (topsoil/overburden): portion presently stripped, remainder will be stripped as pit is operated and all the topsoil will be stockpiled for future rehabilitation

Stock piles: temporary stockpiles only as pit progresses; any permanent piles shown on plan

Water table: estimated at 90.0m; no extraction will occur below the water table

Water wells within 150m: no wells

Operation method and phasing: operational and phasing may vary from that identified due to quality, quantity of material and market demand upon prior approval of Ministry of Natural Resources; crushing operations allowed only between hours of 9 a.m. to 5 p.m.; location of crusher to have prior approval by MNR

Progressive rehabilitation: existing disturbed 30m setback adjacent to the road will be sloped to at least 3:1 slope seeded/planted with conifer trees; as each pit face is mined out they will be sloped 3:1 and areas not required for pit operation will be seeded/planted with suitable trees

Final rehabilitation: all pit faces will be sloped 3:1, the excavated and sloped areas will be covered with topsoil from the pit perimeter and will be seeded with appropriate grass mixtures and planted with appropriate tree species; any seeds will be scarified and planted; extraction to the pit will be removed

Setbacks (show graphically): all 15m & 30m setback adjacent to Dow Permit

Variances from regulations: the setback common to the Dow Permit is removed in order to extract the material, a minimum of 3:1 slope will occur between the aggregate permits

Additional notes:

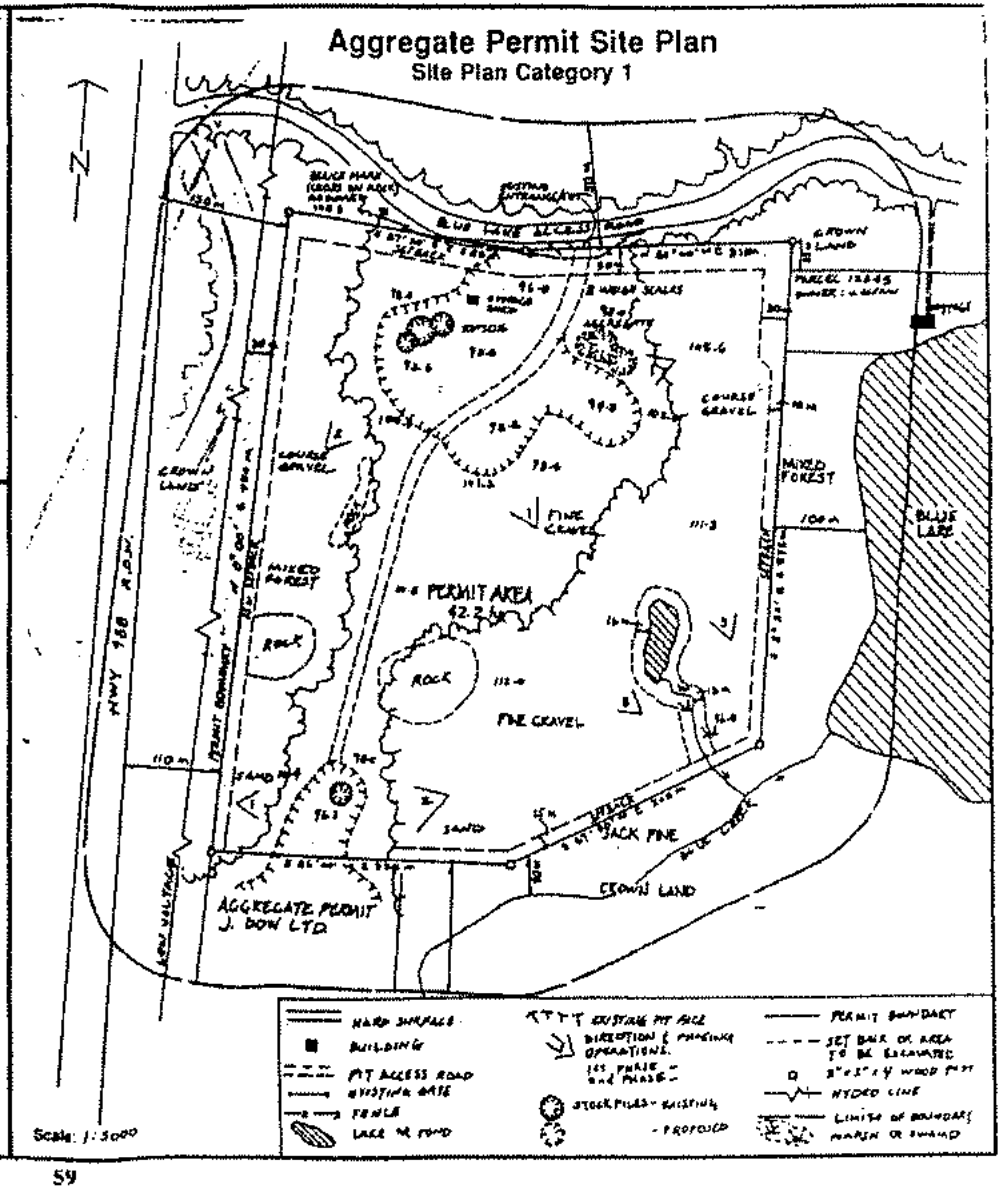


Figure 6 : Aggregate Permits Generic Site Plans - Category 2 (Remote Areas)

Pit/Quarry (name or no.)

Aggregate Permit Site Plan

Site Plan Category: 2
Permit/Pit No. 4578
Lot: 5 Concession: 2
Township: Aggro
Permittee: John Arrow Ltd.
Address: 3744 Marsh Dr., Sudbury, Ont.
P0M 3A0

I acknowledge and shall carry on my operation in accordance with this site plan upon which my aggregate permit is based.

John Arrow
Signature of Permittee

Key Plan

copy of 1:50,000 map or similar map to show location

Scale:

Site Plan Notes

Existing uses: part existing pit remainder forested
Zoning: Crown, District Land Use Guidelines
Estimated life of pit: 5yrs Permit area: 30.1 hec. Excavation depth: 6m
Boundary located on ground by: painted red along excavation setback
Area to be excavated: 18.5 hec.
Existing and proposed buildings: no buildings
Stripping (topsoil): will be done as pit progresses adequately back from pit face; all topsoil, subsoil and overburden will be saved on site for rehabilitation
Stock piles: temporary stock piles only near working faces and if required

Drainage: natural percolation
Progressive rehabilitation: area adjacent to logging road will be mined out and rehabilitated first, additional extraction and following rehabilitation will proceed in a clockwise direction

Final rehabilitation: all slopes will be at least 3m horizontal to 1m vertical; drainage will be by percolation; natural revegetation will occur

Setbacks (show graphically): 30m + 15m
Variance from regulations: the 30m setback along logging road is reduced to 15m as shown on plan; topsoil will be stored together because layers are thin and inseparable
Additional notes:

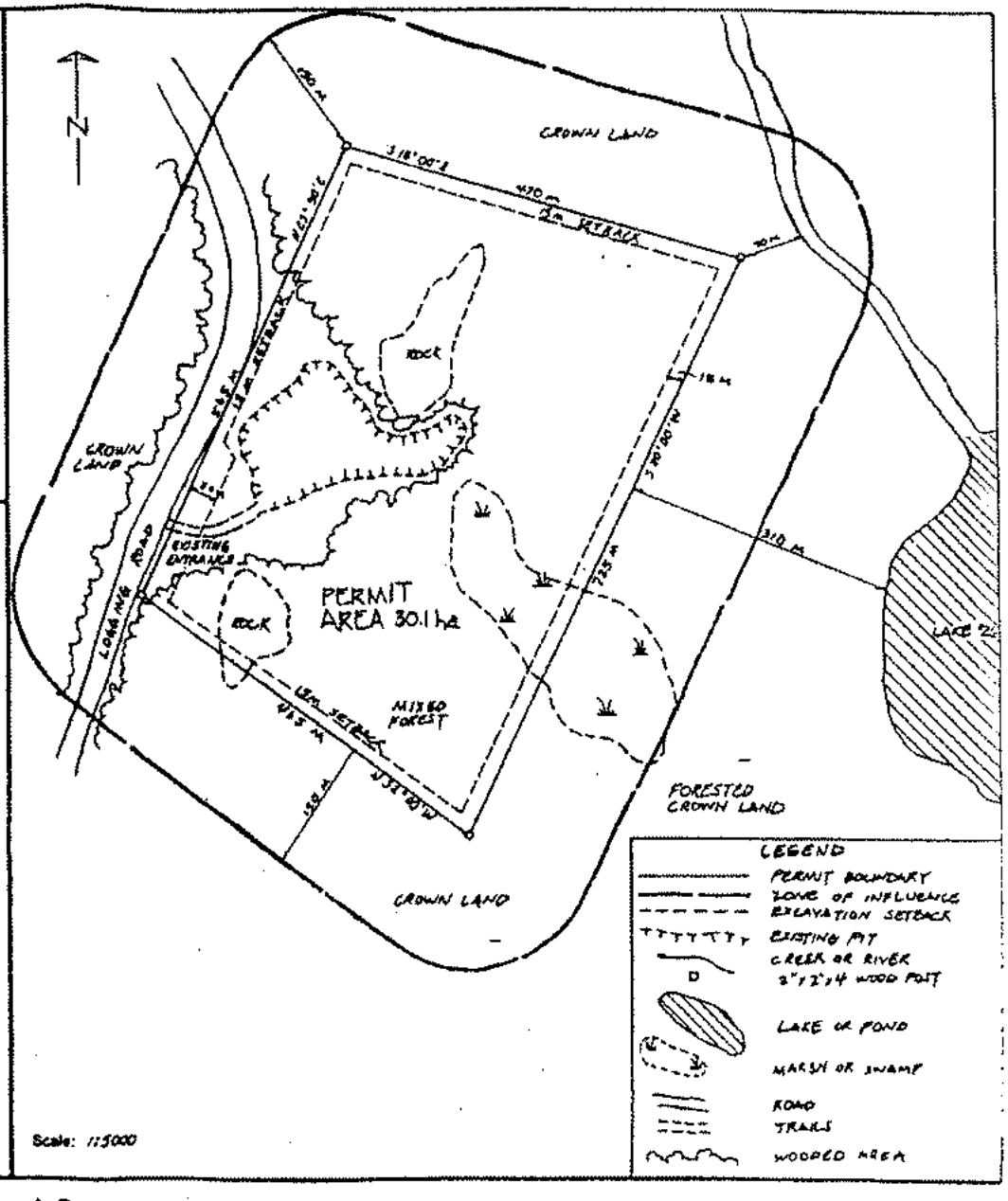
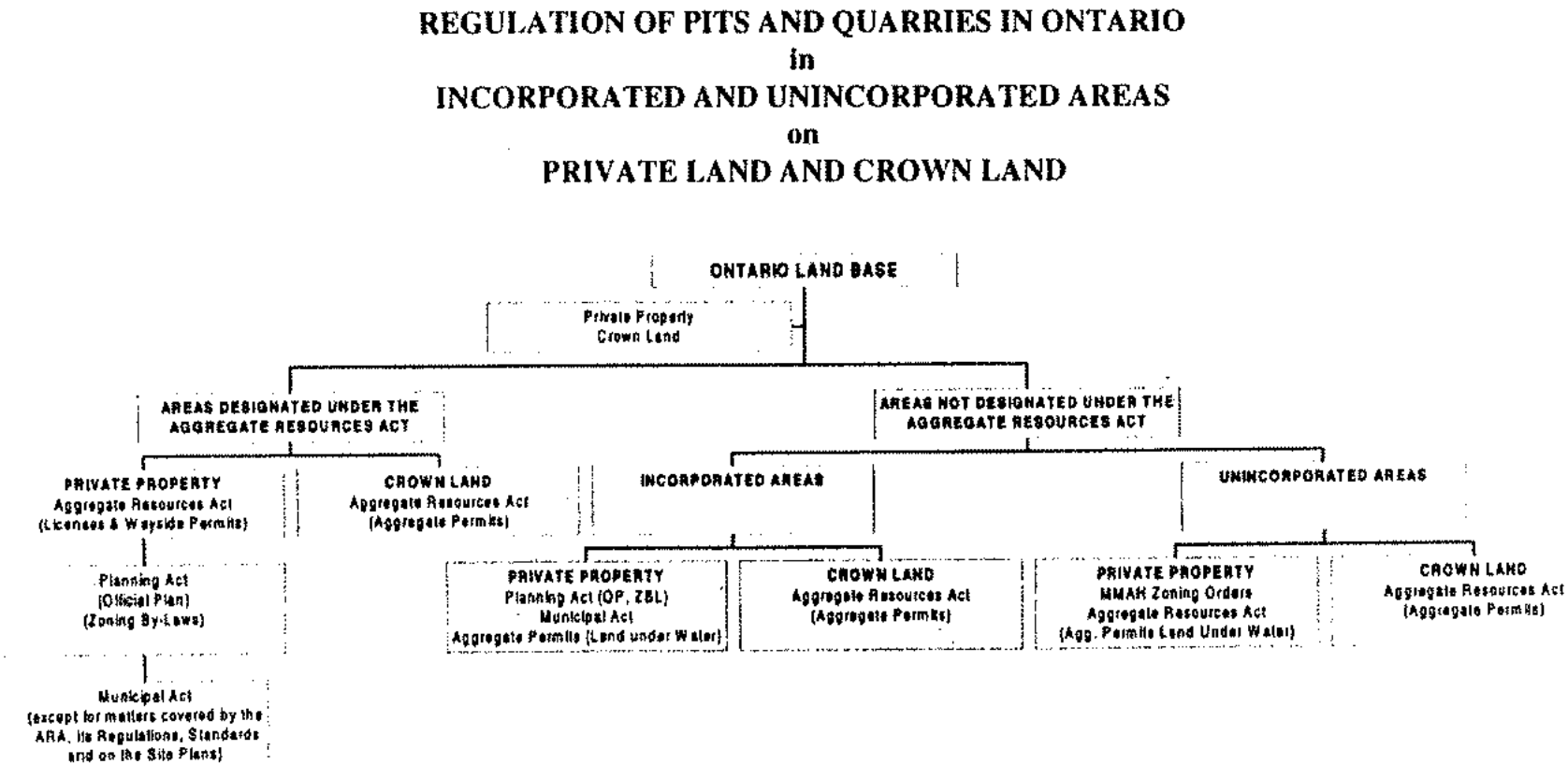


Figure 7 : Flow Chart - Regulation of Pits and Quarries in Ontario



Appendix C

MECP Memorandum and Comments

Ministry of the Environment, Conservation and Parks
Eastern Region
1259 Gardiners Road, Unit 3
Kingston ON K7P 3J6
Phone: 613.549.4000
or 1.800.267.0974

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Région de l'Est
1259, rue Gardiners, unité 3
Kingston (Ontario) K7P 3J6
Tél: 613 549-4000
ou 1 800 267-0974

Ontario

M E M O R A N D U M

November 7, 2023

TO: Aaron Gordon
Environmental Compliance Officer
Belleville Area Office
Eastern Region

FROM: Dana Cruikshank
Surface Water Specialist
Water Resources Unit
Kingston, ON.
Eastern Region

RE: Hydrogeological Assessment Update 1
Leahy Excavations, County Rd 4
Part Lot 3, Concession 9, Township of Douro-Drummer
County of Peterborough
ECHO Ref #: 1-238149422

I have reviewed the above report dated October 2023 prepared by GHD Limited (GHD) for surface water concerns only. Surface water provided comments dated March 27, 2023, on the initial hydrogeological assessment.

GHD reports the following;

- With respect to comments and recommendations made by the MECP following a Pre-consultation Meeting in April, 2023 GHD has prepared this Hydrogeological Assessment Update on behalf of Leahy Excavations Inc. The report is to be submitted as part of an Environmental Compliance Approval (ECA) application to MECP. The ECA is for a proposed soil bank and existing hydro-vac slurry receiving operation at the lands identified on Part Lot 3, Concession 9 in the Township of Douro-Dummer in Peterborough, Ontario.

- Historically the Site was used as a wayside pit for construction of County Road 4 in the early to mid-1900's. Currently, the Site is used to receive topsoil and other soils excavated from construction projects as well as asphalt and concrete material. The topsoil is stockpiled, screened, and reused offsite. Granular materials are stockpiled, screened, and reused offsite or are used onsite for backfilling of the wayside pit area. Non-granular materials, generally described as higher in silt and clay content, are used for backfilling the wayside pit area. This soil is initially stockpiled in various locations on the east portion of the Site. Asphalt and concrete are crushed and sorted into piles and sold as recycled materials. The Site also receives hydro-vac trucks with slurry material collected primarily from daylighting of underground utilities. The slurry from the hydro-vac

trucks is deposited in the receiving pond where settling of material occurs. The receiving pond has been constructed out of the non-granular materials. Water from the slurry generally evaporates off or infiltrates into the ground. The pond is dredged on an approximate weekly basis and the material is piled and dried on the north side of the pond.

- The Site is located in a rural-residential and agricultural area approximately 5 kilometres east of Peterborough. The area is privately serviced for water and sewage. Meade Creek and a tributary of Meade Creek traverse the Site in a southerly direction. Meade Creek is a tributary of the Otonabee River. The Site is located within the physiographic region known as the Peterborough Drumlin Field. Locally, the Site is within a drumlin feature that includes a till plain and an esker. The operational portion of the Site is located within the esker.

- The east side of the Site is designated as an Environmental Conservation Zone (EC) where Meade Creek is situated. Within the western portion of the Site is a tributary to Meade Creek. An earth berm has been constructed along the edge of the operational area and the EC zone.

- The ground surface generally slopes towards the creek and tributary and generally in a southwesterly direction. Regionally, overland drainage is inferred to be toward Meade Creek and the tributary of Meade Creek which flow to the Otonabee River.

- Groundwater samples were collected from monitoring wells MW2-22 and MW6-22 on August 17, 2022. The samples were analyzed for general chemistry, metals and inorganics, PHCs, and VOCs. Groundwater samples were collected again on April 19, 2023 and analyzed for general chemistry. The analytical results were compared to the Ontario Drinking Water Quality Standards (ODWQS) and the MECP Table 8 Standards for all property use. The results met MECP Table 8 Standards and generally met the ODWQS with the exception of hardness and turbidity from samples collected in 2022. The exceedances are not considered to be of an environmental concern for the ECA application.

- One (1) soil sample was collected immediately downgradient of the receiving pond on September 12, 2022 and analyzed for pH, electrical conductivity (EC), sodium adsorption ratio (SAR), metals, PHCs, VOCs, and PAHs. The analytical results were compared to MECP Table 1 Standards (Full Depth Background Site Condition Standards for residential / parkland / institutional / industrial / commercial / community property use). The results meet the Table 1 Standards for residential / parkland / institutional / industrial / commercial / community (RPIICC) types of property uses.

- Two (2) surface water samples were collected on August 17, 2022 and analyzed for general chemistry, metals and inorganics, PHCs, and VOCs. The surface water samples, Creek #1 and Creek #2, were collected from Meade Creek. Creek #1 represents a sample obtained upgradient of the Site and Creek #2 is representative of water quality downgradient of the site. Subsequent surface water samples were collected on April 19, 2023. These samples were analyzed

for general chemistry only. The analytical results were compared to Provincial Water Quality Objectives (PWQOs). The results met the respective PWQOs for all parameters with the exception of iron in sample Creek #2 taken in 2022. The exceedance for iron is attributed to organic material within the sample.

- The figure below is taken from Figure 3 of the report and shows groundwater and surface water monitoring locations.

- GHD concludes that the Site operations are not expected to impact the soil quality or downgradient groundwater or surface water quality.

- GHD recommends that a monitoring program be continued at the Site to evaluate the surface water and groundwater quality. GHD recommends the following annual sampling program be conducted on a quarterly basis for the parameters tested for and documented in this report: –
    - Surface water sampling at the locations Creek #1 and Creek #2.
    - Groundwater sampling at select shallow and deep monitoring well locations.
    - Water levels should continue to be obtained to assess seasonal fluctuations and to assess any trends over time.
    - The sampling events are to be summarized annually and a report submitted to MECP.

- A Design and Operational Report will be developed for the Site.

- Incoming soil quality should be specified, in terms of quantity and quality.

- A detailed monitoring plan proposal is recommended that will include the possibility of additional monitoring wells downgradient from the soil stock location. Controls and monitoring of incoming material may not require the installation of new wells.

Reviewer's Comments

The reviewer notes that in the groundwater and surface water quality tables in the updated report that the units (ug/L) in the tables do not apply to the April 2023 data which appears to be in mg/L for some parameters.

Comments provided in my March 2023 memo were preliminary and were to be used as a guide to move forward with the ECA application as more information was to be collected over the course of 2023. With respect to surface water the only new information in this updated report are results for the April 2023 sampling event at Creek 1 and Creek 2. The April sampling event was limited to general chemistry parameters and therefore this data is limited in assessing background for other parameters related to possible contaminated soils.

The previous report indicated that quarterly sampling was proposed to characterize the water quality in Meade Creek. As of the date of this report only one sample was collected in 2023 which is insufficient to characterize the seasonal water quality in Meade Creek. Meade Creek is located in a Provincially Significant Wetland and as such wetland water chemistry can be variable. In order to distinguish natural variation in water quality in the wetland throughout the year samples need to be taken on a regular basis to establish ”background” conditions so that potentially water quality impacts from the soil storage facility can be determined or not.

It is my understanding that an application is being made for a Class 1 Soil Management Site Approval as a Soil Bank. This type of facility accepts soil from more than one source. Soils received at this site must have documentation showing the soil has been tested. The report indicates a Design and Operational Report will be developed for the Site and this report should include the operational procedure proposed for accepting approved soils as part of their ECA application.

The previous hydrogeological report indicated that soil received at the site will be sorted, screened and stockpiled. It is my understanding that screening is considered a type of processing. Clarification was requested in my previous memo of whether this operation makes the site a processing site in addition to a being a soil bank. This clarification was not provided in this updated report.

My previous memo also mentioned that a stormwater management plan was required for this site and has yet to be submitted for review.

The Excess Soils ECA will require analysis of soil received at the site as part of the requirements in O. Reg 406/19. If sources of excess soils have been determined to be “clean” by meeting regulatory standards, then potential off-site impacts are significantly reduced.

The previous report mentions that asphalt and concrete will be received at the site, crushed and sorted into piles. PAHs and PHCs are known to be found in runoff from these piles and therefore could impact on water quality in the PSW, Meade Creek and/or its tributary. Depending on how stormwater is managed, and best management practices implemented at the site the proposed surface water monitoring program may need to be flexible in order to accommodate monitoring for other contaminates found in the soils received at the site.

Figure 2 in the above report shows five groundwater wells along the east side of the site. From a surface water perspective, I would view these wells as sentinel wells for groundwater entering the wetland and Meade Creek. There are no wells on the west side of the site and therefore no early warning sentinel well for potential impacts to the tributary. The report indicates that the site also slopes towards this tributary and therefore groundwater flow might also go to the tributary. Groundwater can comment on the need for additional wells in this area. The same two wells MW6 and MW2 were sampled in April 2023. My previous memo recommended that MW5 (downgradient of the slurry pond) should have also been sampled.

My previous memo indicated that the two surface water stations were sampled in August 2022. I noted a discrepancy in the report dates and the lab certificate dates and the importance of clarifying if the samples were collected the same day or not as a significant precipitation event occurred during the days sampling was conducted. The differences in water quality noted in my previous memo may have been due to more water moving through the Creek on the second day of the storm event when the lab certificates indicate Creek 2 was sampled. If they were sampled on different days that Tables should be adjusted accordingly as they are for Organics that were sampled September 12, 2022.

Again, the previous report indicated that the site receives liquid soil which is stored in an on-site receiving pond that has been constructed out of non-granular materials. GHD reports that the slurry generally evaporates off or infiltrates into the pond. The pond is dredged weekly, and material piled and dried on north side of the pond. The report doesn't mention the fate of these soils. In my opinion these dredged soils should also be sampled.

Recommendations

Moving forward with an ECA application the following is required;

1. The surface water monitoring plan of quarterly sampling for Creek 1 and Creek 2 for the same parameters analyzed from samples collected during the August 17 and September 22, 2022 sampling event needs to be implemented to have a "background" database to assess water quality once the site is fully operational.

2. Water quality in the on-site tributary also needs to be characterized before operations begin at the same sampling frequency and time as the two stations on Meade Creek. Based on imagery the reviewer suggests an upstream sample, upstream of the culvert crossing under CR4 and a downstream sample at the property line.

3. The slurry pond also needs to be sampled on a regular basis.

4. A stormwater management plan is required for the site that demonstrates that pre and post development runoff is the same so that the areas water balance is maintained. This is important especially for the PSW. The site must be developed so that it is capable of handling 100-year storm events.

5. A Design and Operations report is required to describe how materials are determined to be acceptable to be stored at the site as well as the best management practices in place to prevent runoff to the Meade Creek PSW. Impacts from groundwater infiltration also needs to be addressed and its potential to affect water quality in Meade Creek.

If you have any questions regarding the above comments or recommendations, I would be pleased to discuss them with you.

Dana Cruikshank (Surface Water Specialist)

ec: Victor Castro (WRU Supervisor)
Courtney Redmond (Peterborough District Supervisor)
Eric Martin (Groundwater Reviewer)
Christina Klein (TSS Manager)

Ministry of the Environment, Conservation and Parks
Eastern Region
1259 Gardiners Road, Unit 3
Kingston ON K7P 3J6
Phone: 613.549.4000
or 800.267.0974

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Région de l'Est
1259, rue Gardiners, unité 3
Kingston (Ontario) K7P 3J6
Tél: 613 549-4000
ou 800 267-0974

Ontario

M E M O R A N D U M

April 27, 2023

TO: Gary Muloin
Environmental Officer
Ministry of the Environment, Conservation and Parks
Peterborough District
Eastern Region

FROM: Eric Martin
Hydrogeologist
Technical Support Section – Water Resources Unit
Eastern Region

RE: Leahy Excavations Inc., County Road 4, Peterborough

I have reviewed the following documents:

"Hydrogeological Assessment County Road 4, Peterborough, Ontario
Leahy Excavations Inc." dated January 30, 2023 and authored by GHD environmental.

I offer the following comments and recommendations for your consideration:

Background

An ECA is proposed for the construction of a soil bank on what will be referred to as "the Site". An existing hydro-vac slurry receiving operation is already located on Part of Lot 3, Concession 9 in the Township of Douro-Dummer in Peterborough, Ontario. It is located on the south side of County Road 4, in a rural-residential area that is also home to agriculture. The Site is reported to be approximately 35.7 hectares (ha) in area and to the east is an Environmental Conservation Zone (EC) which includes Meade Creek.

Historically, the pit on the Site was used for construction of County Road 4 and is now used to receive topsoil and other soils from construction projects as well as asphalt and concrete material. In addition to this, the site receives slurry unloaded from hydro-vac

work associated with underground utilities daylighting. When the slurry arrives at the Site, it is transferred to a settling pond.

The area is serviced by private water supplies, forty-one (41) of which are located within a 250 m radius of the site. Ten (10) of these are overburden wells, one (1) with dug construction and nine (9) drilled. The remainder are installed into the bedrock.

Geology

Regionally, the subsurface is composed of: Sand and gravel with minor silt and till that is ice stratified; underlain by coarse textured sand and gravel with minor silt and till that are glaciolacustrine; underlain by coarse textured sand and gravel with minor silt and till that are glaciofluvial; underlain by what is described as stone-poor, sandy silt to silty sand-textured till on Paleozoic bedrock formation.

The information provided approximates an overburden thickness of 3 m and a depth to bedrock as 3 metres below ground surface (m BGS) to 27 m BGS based on a survey of MECP well records in the area.

Geology specific to the Site was assessed using six (6) boreholes, MW-1-22 through MW-6-22, which experienced auger refusal on assumed bedrock. Based on this, it the estimated overburden thickness is 3.8 m. Geology local to the site is described as gravelly sand with a thickness of 0.8 to 2.3 m; underlain by silty sand with clay and gravel to refusal at 3.8 m BGS.

Hydrogeology

The Site is partially located in within a Significant Groundwater Recharge Area, SGRA along County Road 4 which also has a moderate vulnerability score of 4. The middle to the south of the Site is classified as SGRA and several smaller areas in the north of the site and the entire northeast area is assigned the higher, but still moderate value of 6. The Site is not located in a designated Wellhead Protection Area (WHPA).

As the boreholes were advanced, it is reported that water was encountered in the overburden unit between the depths of 2.0 m BGS in MW2-22 to 3.0 m BGS in MW-6-22. Static water levels were recorded in August and October of 2022 and in both cases, MW1-22 and MW-4-22 were dry. Water levels are slightly higher in October than they were in August, with a maximum range of 1.15 to 3.75 m BGS. Groundwater flow direction is characterised as easterly to southeasterly, towards Meade Creek.

Hydraulic conductivity values were assessed using single well response tests on three monitoring wells (3) using the Bouwer-Rice slug-test method, which is designed for unconfined aquifers but may also be adapted for stratified or confined aquifers, assuming than the bottom of the well screen is some distance from the potentiometric

surface. Although it is not specified in the submitted materials, during the course of the test the water level is not to fall below the screened portion of the well, or an alternative method of calculating the effective radius must be used. This appears to be the case based on the well diagrams but confirmation of this is required.

It is noted that the single well method only characterises the hydraulic conductivity of the subsurface in a small area adjacent to the borehole. Multi well testing is recommended to refine conductivity values over the entire area between the boreholes, however if it can be demonstrated that only clean soil is accepted, this testing may not be necessary. If testing is performed and given the presence of SGWA and HVA designations on site, multi well testing and comparison of the hydraulic conductivity results to the single well slug test is recommended. The horizontal hydraulic conductivity has been estimated as 1.0×10^{-6} m/s and 2.1 m/s $\times 10^{-5}$ m/s for gravelly sand.

The author refers to the hydraulic conductivities to be low, but I disagree with this assessment, and would estimate the conductivity as moderate to high based on the values presented. The borehole logs identify the lower overburden strata as 'dense', however, which could cause it to behave as an aquitard. It is assumed that the relatively low hydraulic conductivity of the overburden will prevent the downward migration of constituents, but it is my opinion that that more must be done to demonstrate this claim. Connectivity between the overburden and bedrock units should be refined, as no lining was mentioned with relation to the holding ponds to act as a hydraulic barrier.

A description of bedrock type, competency and transmissivity are not noted. They are key parameters in transport of dissolved constituents, and I recommend that greater detail be provided.

Background and Downgradient Water Quality

Background water quality at the site was assessed using MW2-22 and MW6-22. Water quality results are compared to the PWQO and Table 2 of The MECP Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act which has a much larger parameter list than the PWQO. Comparisons should also be made to the ODWS.

The only exceedances reported were Hardness (328-375 mg/L) and Turbidity (17.8 to 211 mg/L). Both of these parameters are likely naturally occurring but the total range in turbidity is very large between MW2-22 and MW6-22. The presence of turbidity is significantly higher upgradient than down while hardness is similar between the two locations. Chloride is higher at MW2-22 than MW6-22, as is nitrate, which may indicate the dilution of dissolved constituents from road salt and nutrients from agricultural operations. A similar but more pronounced trend is noted in phosphorous, which is a non-conservative tracer and should be expected.

The location of MW6-22 also may not be southerly enough to intercept potential contaminants and it is recommended that the installation of a new well downgradient be considered.

Soil Quality

Background soil quality was assessed using one (1) soil sample collected from the site, identified as GS-1, however the location from which the sample was collected is not identified. Results were compared to the MECP Table 1 Standards (Full Depth Background Site Condition Standards for residential / parkland / institutional / industrial / commercial / community property use). This is not the appropriate standard for the geology described in the submitted materials.

I recommend the use of MECP standards that account for both shallow soil in potable water conditions as well as those which account for being within 30 m of a water body (Tables 6 and 8). I recommend that one sample is also not sufficient to characterise the Site as a whole. It is recommended that more samples with locational data be collected to demonstrate the correct representation the soil quality at the Site.

The quality of incoming soil is also not addressed. The owner or operator of a reuse site or qualified person associated with a reuse site must evaluate the potential cumulative impact of soil of various qualities as per. Reg. 406/19 (On-Site and Excess Soil Management) made under the Environmental Protection Act, R.S.O. 1990, c. E.19 (EPA). Further information on the quality of incoming soil that will be accepted by this facility (receiving site) is required.

Monitoring Program

The author recommends that a monitoring programme be implemented at the site to compare future results with historical data. The proposed monitoring programme specifies surface water sampling at both creeks, sampling of all monitoring wells and static water levels, summarised in an annual monitoring report. It is recommended that a more detailed proposal be presented, with sampling schedules and additional monitoring wells.

Further to this, it is recommended that the settling pond that receives hydrovac material is also sampled on a regular basis and that visual / olfactory observation of hydrovac material is undertaken with each load received at the site. If a sheen or odour (e.g. petroleum hydrocarbon sheen or odour) is observed then the material should be contained and appropriate sampling should be undertaken. Further information is also requested on the origin and quality of hydrovac material received at the site and the nature of the settling pond, such as the inclusion of a clay liner to inhibit infiltration to baseflow or if it has an outlet. Any monitoring data / information related to the existing

hydrovac operation should also be compared to the appropriate groundwater or excess soil tables and submitted for review.

Conclusions and Recommendations

Based on the information provided, I offer the following recommendations for your consideration:

- Water quality on site is compared to the PWQO. It is recommended that those comparisons should also be made using the MECP Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act, with the most appropriate table selection for the site, which includes both thin soils and a waterbody (for areas within 30 m of the water body) in addition to comparing to Ontario Drinking Water Standards, Objectives and Guidelines.

- It is recommended that the settling pond that receives hydrovac material is also sampled on a regular basis and that visual / olfactory observation of hydrovac material is undertaken with each load received at the site. If a sheen or odour (e.g. petroleum hydrocarbon sheen or odour) is observed then the material should be contained and appropriate sampling should be undertaken.

- Multi-well hydraulic testing is preferable to single well methods to determine overall flow characteristics of a geological unit and is the recommended method.

- Incoming soil quality should be specified, in terms of quantity and quality as the level of contamination will drive the risk for potential impacts to receptors. The owner or operator of a reuse site and the qualified person must evaluate the potential cumulative impact of soil of various qualities as per Reg. 406/19.

- It is recommended that a slightly more detailed monitoring plan proposal be presented, with sampling schedules and additional monitoring wells that may be installed downgradient from the soil stock location. Controls and monitoring of incoming material may not require the installation of new wells.

- A description of bedrock type, competency and transmissivity are not included for the Site and I recommend that greater detail be provided on the bedrock unit and its potential flow characteristics. These parameters are key to understanding groundwater flow and transport on site.

"Original Signed By"

Eric Martin, PhD, P.Eng.
EM/em

ec: Victor Castro
Christina Klein
Kyle Stephenson
Dana Cruickshank

c: ECHO # 1-150179722

Ministry of the Environment, Conservation and Parks
Eastern Region
1259 Gardiners Road, Unit 3
Kingston ON K7P 3J6
Phone: 613.549.4000
or 1.800.267.0974

Ministère de l'Environnement, de la Protection de la nature et des Parcs
Région de l'Est
1259, rue Gardiners, unité 3
Kingston (Ontario) K7P 3J6
Tél: 613 549-4000
ou 1 800 267-0974

Ontario

M E M O R A N D U M

March 27, 2023

TO: Gary Muloin
Sr Environmental Officer
Peterborough District Office
Peterborough, Ontario
Eastern Region

FROM: Dana Cruikshank
Surface Water Specialist
Water Resources Unit
Eastern Region

RE: Leahy Excavations Inc
Hydrogeological Assessment
County Rd 4, Part Lot 3, Concession 9,
Twp of Douro-Dummer, Peterborough County
Echo Ref: 1-150179805

I have reviewed the above report prepared by GHD Limited (GHD) dated January 2023 with respect to surface water concerns only.

GED Reports;

- A Hydrogeological Assessment on behalf of Leahy Excavations Inc. was submitted as part of a proposed Environmental Compliance Approval (ECA) application to the Ministry of Environment, Conservation and Parks (MECP). The ECA is for a proposed soil bank and existing hydro-vac slurry receiving operation.

- Historically the Site was used as a wayside pit for construction of County Road 4 in the early to mid-1900's. Currently, the Site is used to receive topsoil and other soils excavated from construction projects as well as asphalt and concrete material. The topsoil is stockpiled, screened, and reused offsite. Granular materials are stockpiled, screened, and reused offsite or are used onsite for backfilling of the wayside pit area. Non-granular materials, generally described as higher in silt and clay content, are used for backfilling the wayside pit area. This soil is initially stockpiled in various locations on the east portion of the Site. Asphalt and concrete are crushed and sorted into piles and sold as recycled materials

- The Site also receives hydro-vac trucks with slurry material collected primarily from daylighting of underground utilities. The slurry from the hydro-vac trucks is

deposited in the receiving pond where settling of material occurs. The receiving pond has been constructed out of the non-granular materials. Water from the slurry generally evaporates off or infiltrates into the ground. The pond is dredged on an approximate weekly basis and the material is piled and dried on the north side of the pond.

- The Site is within a drumlin feature, a drumlinized till plain and an esker. The operational portion of the Site is located within the esker

- Based on the information reviewed GED indicates the Site is partially within a SGRA (Significant Groundwater Recharge Area) along County Road 4. From the middle of the Site toward the south, a SGRA exists with a vulnerability score of 4 or moderate. There are several smaller areas in the northern portion of the Site with a vulnerability score of 6. The northeast portion of the Site is also within an HVA (Highly Vulnerable Aquifer). These areas are shown in Figure 7 of the report. The subsurface investigation by GHD encountered glacial till that is expected to exhibit relatively low hydraulic conductivity suggesting that infiltration contributions to the underlying aquifer complexes will be relatively minor. The majority of active potable groundwater wells in the area of the Site draw water from a bedrock aquifer. Some protection of the underlying aquifers is expected from the overlying till.

- The groundwater levels range from 1.15 to 3.75 mbgs. The shallow groundwater flow is in an east to southeast direction toward Meade Creek.

- Groundwater samples were collected from monitoring wells MW2-22 and MW6-22) on August 17, 2022. The results meet the MECP Table 2 standards. The results generally meet the ODWQS with the exception of hardness and turbidity.

- Surface water samples, Creek #1 and Creek #2, were collected from Meade Creek on August 17, 2022. Creek #1 represents a sample obtained upgradient of the Site, while Creek #2 is downgradient at Douro 9th Line. The results meet the PWQOs with the exception of iron in the sample from Creek #2. The exceedance for iron is attributed to organic material within the sample.

- One (1) soil sample was collected from the area of the Site immediately downgradient of the receiving pond. The sample was collected on September 12, 2022. The results meet the Table 1 Standards for residential / parkland / institutional / industrial / commercial / community (RPIICC) types of property uses.

- The construction of a soil berm at the north and west portions of the Site, along County Road 4, is proposed for the purposes of noise and dust reduction.

- GED concludes that the Site is suitable for use as a Soil Bank facility and the continued use as a Hydro-Vac Receiving site from a hydrogeological perspective. It is our opinion that the operations will continue to have minimal impact on the

surrounding surface water and groundwater regimes provided the Site continues to operate in an environmentally responsible manner.

- GED recommends a monitoring program be implemented at the Site to compare future analytical data with the baseline data and assess any trends or changes in the data. The monitoring is recommended for evaluating the surface water and groundwater quality. GHD recommends the following annual sampling program be conducted on a quarterly basis for the parameters tested for and documented in this report: Surface water sampling to be conducted at the locations Creek #1 and Creek #2. Groundwater sampling at each of the monitoring well locations. Water levels should be obtained to assess seasonal fluctuations and to assess any trends over time. The sampling events are to be summarized in an annual report with a review by a qualified person along with interpretation of the data and recommendations.

Reviewer's Comments.

It is my understanding that an application is being made for a Class 1 Soil Management Site Approval as a Soil Bank. If this the case, then this type of facility accepts soil from more than one project. Soils received at this site must have documentation showing the soil has been tested. The quality of soil allowed to be received at a Class 1 soil management site would be defined in the conditions in the ECA. The hydrogeological report indicates that soil received at the site will be sorted, screened and stockpiled. It is my understanding that screening is considered a type of processing. I am therefore unclear if this meets the definition of a Class 1 soil processing site and therefore more information is required if processing is conducted at the site to reduce contaminants. Either way the site requires a waste site ECA.

Meade Creek traverses the site along the eastern portion and flows southwest to the Otonabee River. A tributary of Meade Creek traverses the western side of the site paralleling County Road 4 and flows south. Figure 9 of the above report shows the proposed final contours. Runoff direction arrows show that runoff will be to the west to Meade Creek and to the tributary in the southwest. There is also runoff north of the entrance way to CR4. It is unknown where this runoff goes because of the proposed berm or if it enters the ditch along CR4. There is also runoff from the north portion of the site into the wetland area. There is no stormwater management plan submitted as part of the hydrogeological study.

The sources of excess soils being received by the site are unknown at this time but may contain contaminated materials. The protocols for how the site operates haven't been presented and these conditions may be dictated in the ECA. Soils from commercial or industrial sources current or historical, likely have some contaminates. The Excess Soils ECA will require analysis of soil received at the site as part of the requirements in O. Reg 406/19. If sources of excess soils have all be determined to be "clean" by meeting regulatory standards then potential off-site impacts are significantly reduced.

The report mentions that asphalt and concrete will be received at the site, crushed and sorted into piles. PAHs and PHCs are known to be found in runoff from these piles and therefore could impact on water quality in the PSW, Meade Creek and/or its tributary.

Depending on how stormwater is managed the proposed surface water monitoring program may need to be flexible in order to accommodate monitoring for other contaminates found in the soils received at the site.

The soils at the site appear to allow for rapid infiltration and therefore runoff might be minimal. The groundwater reviewer can speak to this more fully. Options for stormwater runoff can vary from a site wide collection system to a stormwater management pond or if infiltration rates are high enough then individual swales around each storage area could be installed to collect water in those areas until it evaporates or infiltrates. If a stormwater pond with discharge is the chosen option, then a Stormwater Management (SWM) ECA would also be required. If the swales option is chosen, then Approvals should be consulted as to the need for a SWM ECA. Of course, other options exist, and the proponent and their consultant can propose other ideas. If stormwater infiltrates quickly then it also likely moves quickly through the overburden to low lying areas such as the wetland and creeks. Again, the groundwater reviewer can assess whether this can become a surface water issue or not.

Figure 2 in the above report shows five groundwater wells along the east side of the site. From a surface water perspective, I would view these wells as sentinel wells for groundwater entering the wetland and Meade Creek. There are no wells on the west side of the site (therefore no early warning sentinel well). Water quality samples were taken from two wells, MW2 and MW6. Based on the site diagram it would appear that MW6 is supposed to be a background well. MW2 is in the northern portion of the site. Two wells (MW1 and MW4 were dry). It isn't clear why samples weren't taken from the remaining wells especially MW5, which is downgradient of the receiving pond. Assuming that MW6 is background, the water quality results show elevated concentrations of chloride, nitrate, sulphate, turbidity, TP and most metals at MW2. Again, the groundwater reviewer can comment on the placement of the wells and what the water quality results may mean.

Two surface water stations were sampled in August 2022. Creek 1 is on Meade Creek upstream of the site and Creek 2 downstream at Douro 9th Line. The report indicates that both were sampled on August 17^{th,} but the lab certificates indicates that Creek 1 was collected on the 17th and Creek 2 on the 18th. This discrepancy is noted because the water quality data shows that turbidity, TP, ammonia and TOC were elevated at Creek 2. Environment Canada records show that a significant amount of rain (~40 mm) fell in Peterborough between August 16th and 19th. The elevated concentrations at Creek 2 may have been a result of more turbid water coming through the Creek throughout the rain event with water sampled on the 18th being more likely to represent water quality from the wetland area due to the 25 mm event on the 16th and not related to the site. None of the elevated concentrations would be a concern as they all met PWQO or CWQG guidelines. In any case, more background monitoring is required in order to provide a background water quality database to compare to when the site becomes fully operational.

The site receives liquid soil which is stored in an on-site receiving pond that has been constructed out of non-granular materials. GHD reports that the slurry generally evaporates off or infiltrates into the pond. The pond is dredged weekly, and material piled and dried on north side of the pond. The report doesn't mention the fate of these

soils. It is my understanding that conditions relating to the handling and operation of the receiver pond will be in the ECA.

In the Pre-submission Consultation meeting March 22, 2023, there was mention of a Meade Creek PSW. Neither Ontario Geohub nor the MECP Environmental Atlas shows a PSW near this site. A request was made to Otonabee River Conservation Authority (ORCA) to provide additional information including mapping in this regard. ORCA has responded that he wetland area along Meade Creek was recently evaluated as a PSW. There was also some discussion regarding an Environmental Information Study (EIS). When this information becomes available, I will provide you with an updated assessment if required.

Recommendations

1. The proposed surface water monitoring plan of quarterly sampling for the same parameters reported in the report is acceptable at this time. However, the parameter list may require modification as more information is made available.

2. Water quality in Meade Creek and the on-site tributary needs to be characterized better before operations begin with more frequent monitoring throughout the year. Wetland chemistry can be extremely variable and therefore a more robust background (pre-operation) database would provide a better screening tool to assess if changes in downstream water quality are associated with the site or natural wetland processes.

3. A stormwater management plan is required for the site that demonstrates that pre and post development runoff is the same so that the areas water balance is maintained. This is important especially for the PSW. The site must be developed so that it is capable of handling 100-year storm events. Based on the site pictures and description it would seem the site may be prone to rapid runoff in some areas that may result in erosion and therefore affect water quality in localized watercourses. The site appears to have little vegetative cover, so TSS and turbidity are a concern that needs to be addressed.

The above comments are preliminary and as more information becomes available additional recommendations may be required. If you have any questions regarding the above comments or recommendations, I would be pleased to discuss them with you.

Dana Cruikshank (Surface Water Specialist)

ec: Victor Castro (WRU Supervisor)
Courtney Redmond (Peterborough District Supervisor)
Eric Martin (Groundwater Reviewer)

Appendix D

Tracking Record Forms

Daily Summary Log

	Material Source				Haul Information						
Date (day/month/year)	Client	Source of Soil (location/address)	Analytical Provided? (Yes/No)	Documentation signed by Source QP	Truck Number/Unit	Bill of Lading (Number)	Quantity (KG)	Classification	Accepted Load (Yes/No)	Rejected Load	Reason for Rejection

On-Site Soil Management Tracking

Tracking				
Date (day/month/year)	Location of Soil on Property (or GPS)	Analytical Conducted (Date)	Results (Meets Table 1 etc.)	Final Destination

Outgoing Material Log

Date (day/month/year)	Source & Location		Haul Information			Material			Destination					Authorized Representative			
	Original source of material (location/address)	Current Stockpile Location (or GPS)	Company	License Plate	Unit ID	Bill of Lading (Number)	Quantity (KG)	Classification of Material	Name	Location	Analytical Provided to TSDF?	Departure Time	Arrival Time	Name	Phone Number	Acceptance Signature Provided?	Location of Document Saved (file name/drive etc.)

Appendix E

Inspection and Maintenance Form

WEEKLY INSPECTION FORM
COUNTY ROAD 4,
PETERBOROUGH, ONTARIO

Inspection Date/Time:

Weather:
Site Conditions:

	Item	Condition Acceptable (Y/N)?	Corrective Action Required (Y/N)?	Comments and Corrective Action (What, Date, Time)
	General			
1.	Site Security - Gate in working order and locked as needed?			
2.	Perimeter Berm - Slopes are adequately stabilized and soil or debris has not accumulated in low areas, roadways, ditches or other areas? If not explain:			
3.	Site Nuisances - Wind blown litter at a minimum, no odour or dust concerns, mud not tracked onto public roads, no issues with vector and vermin?			
	Soil Stockpile Areas			
4.	Stockpiled materials are managed to prevent significant erosion and sediment runoff? If not, explain:			
5.	Slopes are adequately stabilized and soil or debris has not accumulated in low areas, roadways, ditches, or other areas??			
6.	Are temporary measures such as silt fences, hay or straw bales, ditches, and berms been implemented? Are they in good condition to prevent erosion and migration of sediment?			
	Surface Water & Drainage			
7.	Surface water is controlled and drains into applicable areas (i.e., no overflow to other areas of the Site)?			
8.	Evaporation ponds are in good condition, no significant erosion and no significant build up of sediment or debris?			
9.	There are no signs of petroleum or chemical sheens, spills, or releases on surface water? If evidence, report immediately:			
	Noise			
10.	Adequate controls have been implemented to minimize noise from the Site?			
	Dust			
11.	Adequate controls have been implemented to minimize dust from the Site?			

Inspection completed by:

Signature:

Title:

RECORD TO BE MAINTAINED FOR 7 YEARS

Appendix F

Training Form

Training Acknowledgement Form

Course:	
Instructor:	

This is to certify that I have received a comprehensive review of the training of the elements of the D&O report and general Site operations.

Print Name	Signature	Date

Appendix G

Environmental Emergency and Contingency Plan

Environmental Emergency and Contingency Plan

Environmental Emergency and Contingency Plan (E2C) outlines the prevention of, preparedness for, response to, and recovery from an environmental emergency. The E2C Plan will be described in this section of the report. A copy of this report will be provided to the local municipality and the local fire department.

The E2C Plan contains a notification protocol with names and telephone numbers of person to be contacted, including persons responsible for the Site, the MECP's District Office and Spills Action Centre, the local municipal Fire Department, the local Municipality, the local Medical Officer of Health, and the Ministry of Labour. Their associated phone numbers are as follows:

Fire, Police, Ambulance	911 or 0
Site Contact/Supervisor (To be confirmed)	705-742-4765
MECP Spills Action Centre (SAC)	1 800 268 6060
Township of Douro-Dummer	705-652-8392
Peterborough County	705-743-0380
Peterborough Public Health	705-743-1000
Ministry of Labour	416 326 7600

The E2C Plan will also provide an organized set of procedures for responding to unexpected Site Conditions.

1.1 Communication

Operators working at the site have a cellular phone to use in the event of an emergency. There is an air horn located on site, which would be used to signal an emergency to staff.

1.2 Spills

As per the above, the Facility will accept approved excess soils and hydrovac soil. If soil is inadvertently released at the Site outside of the Soil Management Area, then the material is vacuumed up and/or excavated and placed in the Soil Management Area.

Vehicle and earth moving equipment may occasionally have fuel and oil spills. These types of spills are expected to be infrequent, involve only small quantities and be readily contained and cleaned up. Fuel and oil material spills, upsets, and fires should be reported to the MECP's Spill Action Centre and/or local Fire Department.

A spill kit will be available on site at all time. It will be located in an area accessible to all staff members. The spill kits in the building will be inspected as part of the monthly health and safety inspection. Missing, lost, or used kits will be replaced.

All trucks also are equipped with spill kits. A spill kit is available and is located in an area accessible to all staff. The spill kit will be regularly inspected and missing, lost or used kits will be replaced.

1.3 Fire

Fire extinguishers will be located in each building. Fire extinguishers are inspected monthly and recharged annually in accordance with the Ontario Building Code. If a fire in the building cannot be easily extinguished with the available fire extinguishers, the building will be evacuated, and the fire department notified.

The burning of any material at the Site is prohibited. Facility employees will recognize fires by detecting elevated temperatures, smoke, smell and/or open flame. In case of fire the following steps will be taken:

- Move to an isolated area or muster point
- Call 911 or 0
- Sound the fire alarm and attempt to shut down any equipment if possible, to do safety
- Provide First Aid as needed
- Attempt to extinguish the fire if possible, to do safety

1.4 Severe Storms

Severe storms may include intense rainfall, extreme winds, electrical storms, or large snowfalls. Before and during such events, Site operations will be planned to be reduced or cease and personnel will take shelter if the storm is severe enough to cause unsafe conditions.

During storm events employees will stop work if they cannot work safely. Management will advise of additional actions and when it is safe to work again.

1.5 Medical Emergencies

Personnel injury could occur at the Facility. If there is an emergency, first aid will be given onsite by trained staff and the employee transported to a clinic or hospital. An Ambulance can be called at 911.

Appendix H

Complaint Procedure Form

Complaint Procedure Form

Complainant Information	
Date & Time	
Name	
Address	
E-mail	
Phone Number	

Complaint Information	
Date & Time	
Location	
Complaint Taken By	
Issue or Incident	
Description of Incident	
Corrective Action