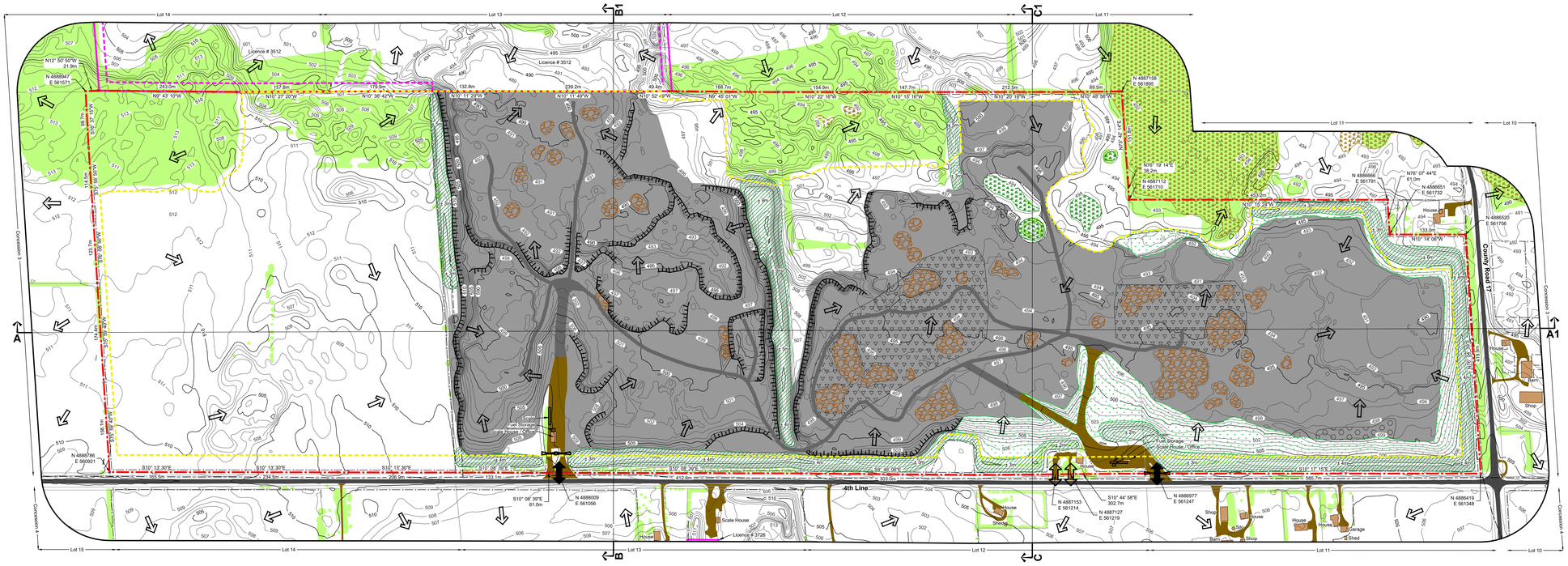

Land Use Designations
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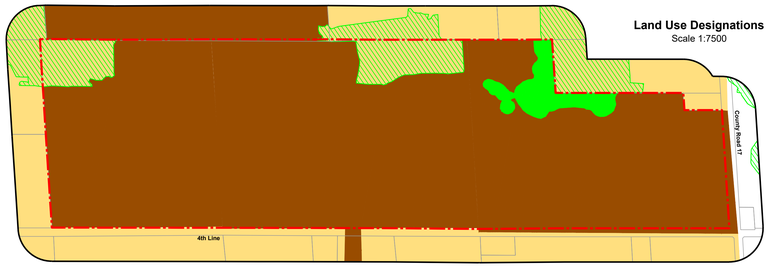
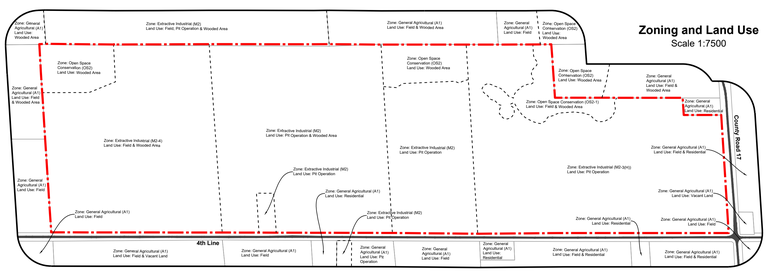


- Agriculture
- Extractive Industrial
- Environmental Protection
- Environmental Conservation
- Rural

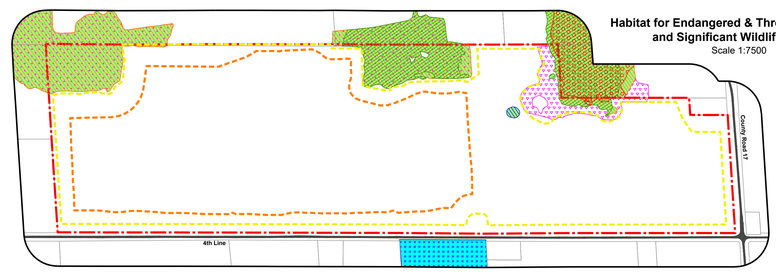
Significant Woodlands & Wetlands
Scale 1:7500

- Surveyed Dripline Boundary - 2024
- Surveyed Woodland Boundary - 2022
- Surveyed Wetland Boundary - 2024
- Surveyed Wetland Boundary - 2022
- Significant Woodland
- Wetland
- Unevaluated Wetland

Zoning and Land Use
Scale 1:7500

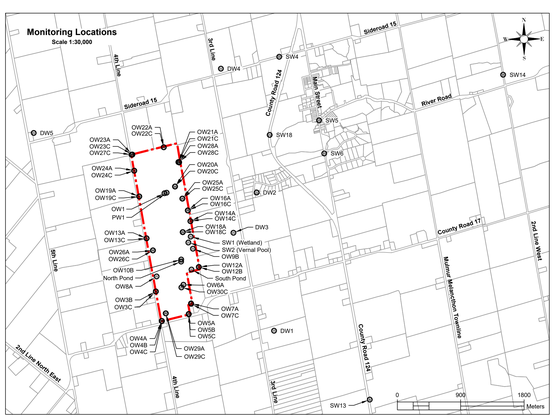


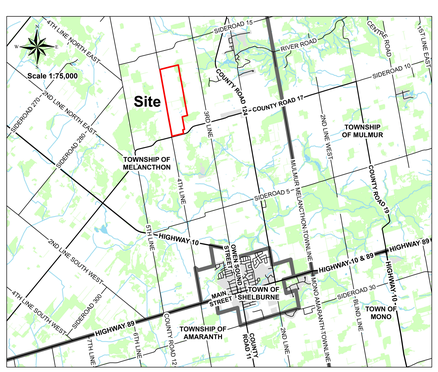
Habitat for Endangered & Threatened Species and Significant Wildlife Habitat
Scale 1:7500



- Species at Risk - Black Ash
- Species at Risk - Bobolink
- Species at Risk - Eastern Meadowlark
- Potential Species at Risk - Bat Habitat
- Significant Wildlife Habitat - Amphibian Breeding
- Significant Wildlife Habitat - Eastern Wood-Pewee
- Significant Wildlife Habitat - Grasshopper Sparrow
- Candidate Significant Wildlife Habitat - Amphibian
- Candidate Significant Wildlife Habitat - Bat Maternity

Monitoring Locations
Scale 1:30,000





A. General

1. This site plan is prepared under the Aggregate Resources Act (ARA) for a Class 'A' Licence for a pit and quarry below the groundwater table.
2. Area calculations
   - 2.1. Licence Boundary 149.0 ha
   - 2.2. Pit Limit of Extraction 123.7 ha
3. Northing and easting coordinates have been provided at all major corners of the licence boundary and at the centre point of every entrance and exit that intersects the licence boundary on the plan view of this drawing.

B. References

1. Contours were obtained from the 2022 Ontario Digital Terrain Model (available through Geospatial Ontario), which is a raster data set representing the bare-earth terrain derived from a classified lidar point cloud, and are displayed in one metre intervals. Elevations shown are in metres above sea level (masl).
2. Topographic information was obtained from numerous sources including Geospatial Ontario, aerial photography captured by drone on April 7, 2022 and field investigations for technical reports.
3. All topographic features and structures are shown to scale in Universal Transverse Mercator (UTM) with North American Datum 1983 (NAD83), Zone 17 (metre), Central Meridian 81 degrees west coordinate system.
4. The licence boundary was established from:
   - A Plan of Survey by P.J. Williams dated April 28, 1972
   - A Plan of Survey by P.J. Williams dated December 14, 2001
   - A Surveyor's Real Property Report by P.J. Williams dated July 10, 2007
   - A Surveyor's Real Property Report by P.J. Williams dated May 21, 2016
   - An ARA site plan prepared by MHBC Planning dated March 28, 2012
5. Existing land use designations on and within 120 metres of the licence boundary (see Land Use Designations schematic on this drawing) was obtained from the Township of Melancthon Official Plan, Schedule A-5 - Land Use and Roads Plan, dated October 2017 and revised with Official Plan Amendment 2 dated July 5, 2018.
6. Existing zoning on and within 120 metres of the licence boundary (see Zoning and Land Use schematic on this drawing) was obtained from the Township of Melancthon Zoning By-law 12.1979 as amended by By-law 12-1982, Schedule "A" as of August 1996, and further amended by By-law 46-2003 dated November 5, 2003, By-law 9-2011 dated January 27, 2011 and By-law 34-2018 dated July 5, 2018. The licence area is currently zoned Extractive Industrial (M2), Extractive Industrial Exception Hold (M2-3(H)), Extractive Industrial Exception (M2-4), Open Space Conservation (OS2) and Open Space Conservation Exception (OS2-1).
7. Land use information identified on or within 120 metres of the licence boundary boundary (see schematic on this drawing) was determined using aerial photography captured by drone on April 7, 2022.
8. Structures identified on or within 120 metres of the licence boundary was determined using aerial photography captured by drone on April 7, 2022.

C. Drainage

1. Surface drainage on and within 120 metres of the licence boundary is by overland flow in the directions shown by arrows on the plan view, or by infiltration.

D. Groundwater

1. The maximum predicted water table within the limit of extraction varies between 483.0 masl and 500.0 masl and is shown in each cross section on drawing 5 of 5.

E. Site Access and Fencing

1. Two operational access points exist on 4th Line in the locations shown on the plan view. There are also two access points for the farmhouse located on Lot 12, Concession 3 on 4th Line.
2. Post and wire fencing exists in the locations shown on the plan view.

F. Significant Natural Features Within 120 Metres

1. There are significant woodlands, non-provincially significant wetlands, unevaluated wetlands, significant wildlife habitat and habitat for endangered and threaten species as determined by Natural Resource Solutions Inc. within the licence boundary (see Key Natural Heritage Features schematic on this drawing).
2. There are significant woodlands, non-provincially significant wetlands, unevaluated wetlands, significant wildlife habitat and habitat for endangered and threaten species as determined by Natural Resource Solutions Inc. outside the licence boundary within 120 metres (see Key Natural Heritage Features schematic on this drawing).

G. Significant Human-Made Features Within 120 Metres

1. There are two licenced pits within 120 metres of the licence boundary. Licence # 3512 is in part of the east half of Lots 13 and 14, Concession 3 while Licence # 3726 is in part of the east half of Lot 13, Concession 4.

H. Aggregate Related Site Features

1. There are existing aggregate operations and features on-site such as processing areas with portable equipment, stockpiles, scrap, haul roads, fuel storage, berms and excavation faces as shown on the plan view of this drawing.

I. Cross Sections

1. Cross sections depicting existing conditions are shown on drawing 5 of 5.
2. Cross sections depicting post rehabilitation conditions are shown on drawing 5 of 5.
3. Cross section locations are identified on the plan view of drawings 1, 2 and 4 of 5.

J. Technical Reports - References

1. Agricultural Impact Assessment, Strada Pit/Quarry, MHBC, August, 2024.
2. Air Quality Assessment, Strada Pit/Quarry, RWDI, June 14, 2024.
3. Blast Impact Analysis, Strada Pit and Quarry, Explotech, May 6, 2024.
4. Cultural Heritage Screening Report, Strada Pit/Quarry, MHBC, August 27, 2024.
5. Level 1 and 2 Hydrogeological and Hydrological Assessment, Strada Pit/ Quarry, Tatham Engineering, October 23, 2024.
6. Natural Environment Report, Strada Pit/Quarry, Natural Resource Solutions Inc., dated October, 2024.
7. Noise Impact Study, Strada Pit/Quarry, Aercoustics Engineering Ltd., May 17, 2024.
8. Stage 1 Archaeological Assessment of Strada Aggregates Existing Melancthon Pit, ASI, May 1, 2024.
9. Traffic Impact Study, Strada Pit and Quarry, HDR Inc, August 20, 2024.

Legal Description

Part of West half of Lot 11, Concession 3
West Half of Lots 12, 13 and 14, Concession 3
(former geographic Township of Melancthon)
Township of Melancthon, County of Dufferin

Legend

- Licence Boundary
- Pit Limit of Extraction
- Quarry Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Internal Haul Road
- Driveway
- Excavation Face
- Disturbed Area
- Stockpile
- Processing Area
- Scrap Area
- Wooded Area
- Rehabilitated Area
- Existing Licence Boundary
- Existing Limit of Extraction
- 120m Offset From Licence Boundary
- Parcel Fabric
- Overhead Hydro
- Fence (1.2m post & wire fence unless otherwise noted)
- Entrance / Exit (Operational - Solid, Farmhouse - Hollow)
- Gate
- Direction of Surface Drainage
- Berm
- Building/Structure
- Wetland
- Unevaluated Wetland
- Cross Sections (A1)

Site Plan Acronyms

1. ARA - Aggregate Resources Act
2. MASL - Metres Above Sea Level
3. MNR - Ministry of Natural Resources
4. MCM - Ministry of Citizenship and Multiculturalism
5. MGCS - Ministry of Government and Consumer Services
6. MECP - Ministry of Environment, Conservation and Parks
7. PTTW - Permit to Take Water
8. ECA - Environmental Compliance Approval

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P. 705.728.0045 | WWW.MHBCPLAN.COM

MNR Approval Stamp

MHBC Stamp

Christopher Poole
Is authorized by the Ministry of Natural Resources pursuant to Subsection 0.2(3)(f) of Ontario Regulation 244/97 to prepare and certify site plans.

Applicant

STRADA AGGREGATES
Strada Aggregates Inc.
30 Floral Parkway
Concord, Ontario
L4K 4R1

Project

Strada Pit & Quarry

437031, 437075, 437101, 437159, 437163 & 437213 4th Line, Melancthon, Ontario, L0N 1S9

MNR Licence Reference No.

Applicant's Signature

Plan Scale: 1:3000 (Arch E)

0 90 180 Meters

Date January 2025

Drawn By C.P.

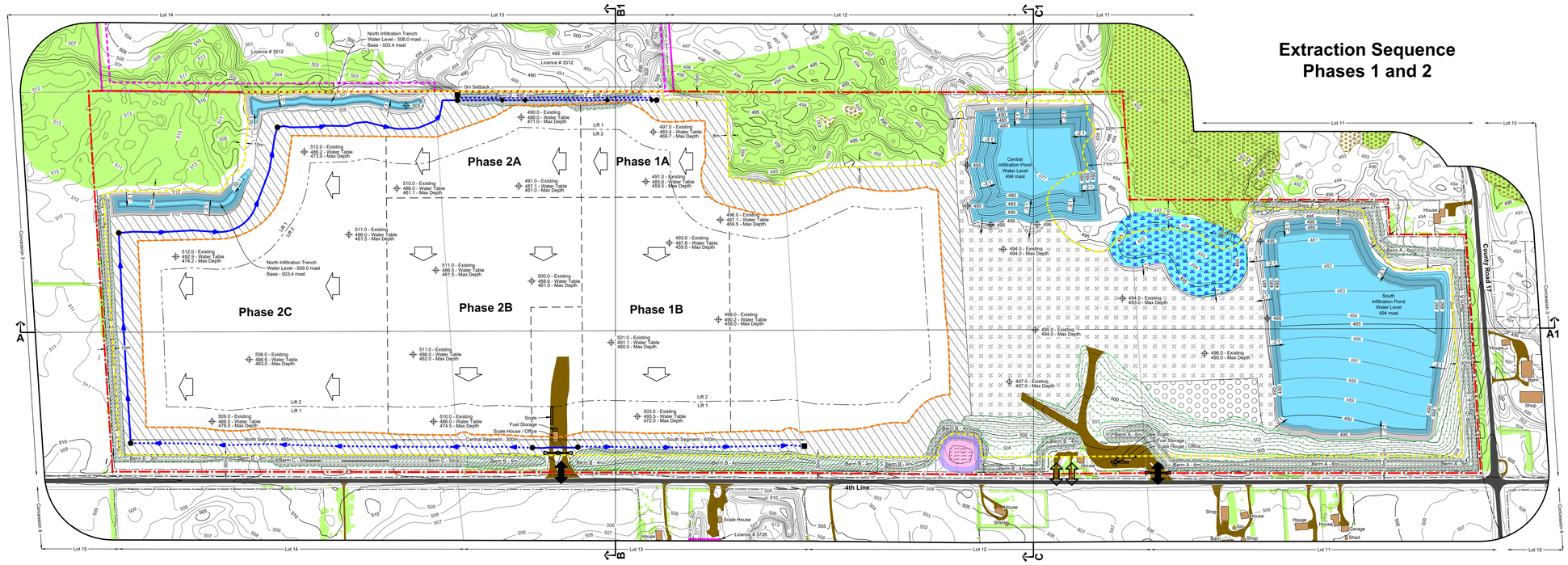
Checked By B.Z.

File No. Y349I

Drawing Name Existing Features

Drawing No. 1 of 5

File Path N:\Brian\Y349I Strada- Melancthon KW File\Drawings\Site Plan\CAD\Y349I - Site Plan.dwg



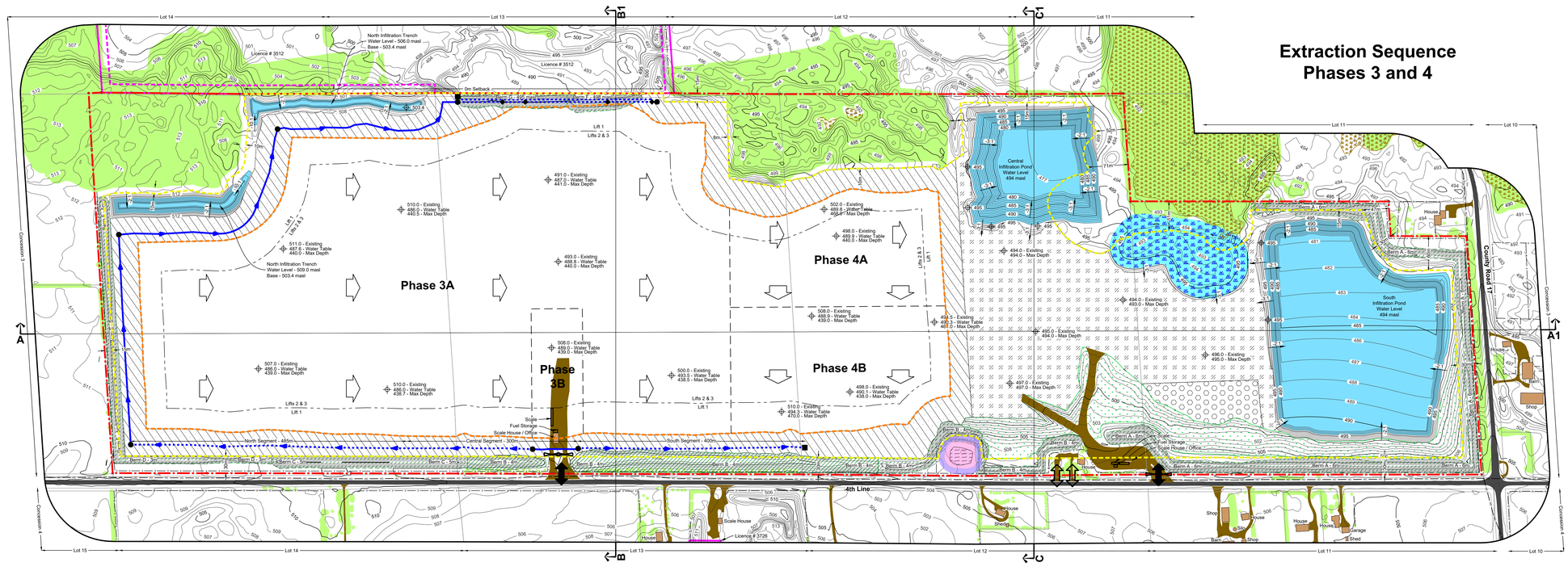


Table 1A: Closest Sensitive Receptors

Sensitive Receptor	Straight Line Distance From Licence Boundary to Receptor (m)	Straight Line Distance From Quarry Limit of Extraction to Receptor (m)	Receptor ID
477084 3rd Line	540	670	R15
477146 3rd Line	590	610	R20
477274 3rd Line	760	1025	R25
437028 4th Line	70	700	R06
437032 4th Line	90	630	R05
437044 4th Line	65	540	R04
437090 4th Line	55	195	R03
437134 4th Line	275	350	R02
437146 4th Line	100	160	R01
437274 4th Line	340	425	R29
437281 4th Line	395	460	R28
625173 Side Road 15	650	720	R27
625206 Side Road 15	580	730	R26
585166 County Road 17	45	960	R10
585189 County Road 17	15	865	R11

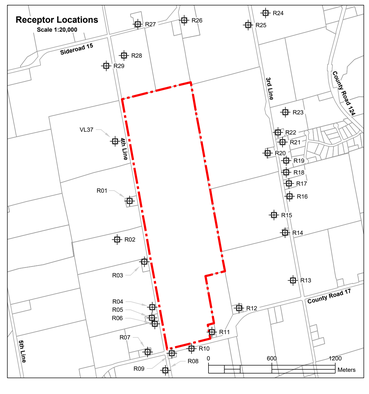


Table 1B: Closest Sensitive Receptors

Sensitive Receptor	Straight Line Distance From Licence Boundary to Receptor (m)	Straight Line Distance From Quarry Limit of Extraction to Receptor (m)	Receptor ID
585221 County Road 17	245	730	R12
585121 County Road 17	187	974	R07
436574 4th Line	200	1139	R08
585142 County Road 17	47	981	R09
477018 3rd Line	650	950	R13
477058 3rd Line	626	798	R14
477081 3rd Line	730	794	R16
477107 3rd Line	744	779	R17
477125 3rd Line	738	758	R18
477133 3rd Line	758	777	R19
477151 3rd Line	754	779	R21
477161 3rd Line	728	764	R22
477181 3rd Line	832	910	R23
477285 3rd Line	966	1235	R24
437202 4th Line	135	204	VL37

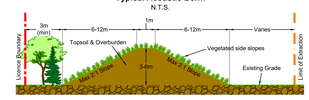
Legal Description

Part of West half of Lot 11, Concession 3
West Half of Lots 12, 13 and 14, Concession 3
(former geographic Township of Melancthon)
Township of Melancthon, County of Dufferin

Legend

- Licence Boundary
- Pit Limit of Extraction
- Quarry Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Driveway
- Water Feature
- Wooded Area
- Rehabilitated Area
- Wetland
- Unevaluated Wetland
- Processing and Stockpiling Area
- Recycling and Scrap Area
- 2:1 Side Slopes to Top of Bedrock
- Arch. Site BaHb-17 Stage 2 Limit
- Arch. Site BaHb-17 Stage 3 Limit
- Arch. Site BaHb-17 10m Offset from Stage 3 Limit
- Existing Licence Boundary
- Existing Limit of Extraction
- 120m Offset From Licence Boundary
- Parcel Fabric
- Overhead Hydro
- Fence (1.2m post & wire fence unless otherwise noted)
- Entrance / Exit (Operational - Solid; Farmhouse - Hollow)
- Gate
- General Direction of Excavation & Boundary
- Berm (Existing - Solid; Proposed - Dashed)
- Building/Structure
- Spot Elevation (Top - Existing (MASL) / Middle - Water Table (MASL) Bottom - Maximum Depth of Extraction (MASL))
- Pond Side Slope (Horizontal : Vertical)
- Buried Tile Drain (Continuous - Solid Tile Drain; Dashed - Perforated Tile Drain Wrapped in Filter Sock)
- Injection Well
- Inspection Port
- Pump Station
- Cross Sections

Typical Acoustic Berm
N.T.S.



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No.	Date	Description	By

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MNR Approval Stamp

MHBC Stamp

Christopher Poole
Is authorized by the Ministry of Natural Resources pursuant to Subsection 0.2(3)(f) of Ontario Regulation 244/97 to prepare and certify site plans.

Applicant

STRADA AGGREGATES

Strada Aggregates Inc.
30 Floral Parkway
Concord, Ontario
L4K 4R1

Project

Strada Pit & Quarry

437159 4th Line, Melancthon, Ontario, L0N 1S9

MNR Licence Reference No.

Applicant's Signature

Plan Scale: 1:3000 (Arch E)

0 90 180 Meters

Date January 2025

Drawn By C.P. | **File No.** Y349I

Checked By B.Z.

Drawing Name

Operational Plan

Drawing No.

2 of 5

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A. General

1. Area calculations
   - 1.1. Licence Boundary 149.0 ha
   - 1.2. Pit Limit of Extraction 123.7 ha
   - 1.3. Quarry Limit of Extraction 65.7 ha
2. The maximum annual tonnage is 2,000,000 tonnes.
3. The maximum predicted water table within the limits of extraction varies between 483.0 masl and 500.0 masl and is shown in each cross section on drawing 5 of 5.
4. The licence boundary is not located within a Wellhead Protection Area or a Surface Water Intake Protection Zone. Therefore, source water protection policies do not apply for this licence.
5. The farmhouse on Lot 12, Concession 3 on 4th Line may remain for the life of the licence.
6. In addition to the requirements on this site plan, the operation of the pit and quarry is also subject to the provisions of an agreement between Strada Aggregates Inc. and The Corporation of the Township of Melancthon, ____________________. That agreement is binding on successors and assigns. Copies of the agreement are available from the licensee or the Township of Melancthon.

B. Hours of Operation

1. Extraction and processing is permitted Monday to Saturday from 7:00 am to 7:00 pm, excluding holidays.
2. Shipping is permitted Monday to Friday from 6:00 am to 7:00 pm and Saturdays from 6:00 am to 5:00 pm, excluding holidays.
3. Site preparation and rehabilitation is permitted Monday to Friday from 7:00 am to 5:00 pm, excluding holidays, and will primarily occur during periods of lower extraction during the shoulder seasons.
4. Blasting is permitted Monday to Friday from 8:00 am to 6:00 pm only during daylight hours.
5. No operations are permitted on Sundays and holidays as defined in accordance with the Employment Standards Act.

C. Site Access and Fencing

1. The two operational access points on 4th Line shall be gated, kept closed during hours of non-operation and maintained throughout the life of the licence.
2. The two access points for the farmhouse located on Lot 12, Concession 3 on 4th line shall not be gated (see Section N Variations from Control and Operation Standards on this drawing). Should the farmhouse no longer be utilized for a non-aggregate related use, gates shall be required.
3. Gates shall not be required where internal haul roads traverse the common licence boundary between this licence and licence # 3512 (see Section N Variations from Control and Operation Standards on this drawing).
4. Gates shall not be comprised of a single cable or chain.
5. The licence boundary shall be fenced with post and wire fencing at least 1.2 metres in height, as shown on the plan view of drawing 2 of 5, except where the licence boundary traverses the wooded areas or along the common licence boundary with licence # 3512 in which case marker posts shall be utilized (see Section N Variations from Control and Operation Standards on this drawing).
6. All required fencing and marker posts along the licence boundary shall be maintained for the life of the licence.
7. A sign of at least 0.5 metres by 0.5 metres in size shall be erected and maintained at the operational access points that says in legible words "This site is licensed under the Aggregate Resources Act licence # ______".

D. Drainage and Siltation Control

1. Drainage of undisturbed areas will continue in the directions shown on drawing 1 of 5.
2. Silt fencing shall be installed and maintained in accordance with note O.6.k on this drawing.

E. Site Preparation

1. A Spills Contingency Plan exits and shall be implemented.
2. Tree removal shall occur in accordance with note O.6.f on this drawing. All non-tree vegetation removal shall occur in accordance with note O.6.g on this drawing.
3. Timber resources shall be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Cleared stumps and brush may be removed from the site, burned (with applicable permits), used for aquatic habitat enhancement, or mulched for use in progressive rehabilitation.
4. Topsoil and overburden shall be stripped and stored separately.
5. Stripped topsoil and organic material shall be transported directly to areas that have been graded and are being prepared for final rehabilitation wherever feasible.
6. Stripped overburden shall be utilized to construct acoustic berms or to backfill side slopes and the pit floor to establish the final slopes, grades and elevations depicted on the plan view of drawing 4 of 5.
7. Stripping shall incrementally precede extraction to minimize the disturbed area and the amount of topsoil and overburden to be temporarily stockpiled.
8. Temporary topsoil and overburden stockpiles which remain for more than one year shall have their slopes vegetated to control erosion. Seeding shall not be required if these stockpiles have vegetated naturally in the first year.
9. All temporary topsoil and overburden stockpiles shall remain a minimum of 30 metres from the licence boundary and 90 metres from a property with a residential use (see Section N Variations from Control and Operation Standards on this drawing).

F. Berms and Screening

1. Acoustic berms shall be constructed to the height specified in the locations shown on the plan view of this drawing and as described in the Noise notes under section O.7 on this drawing.
2. Berms shall not be located within three metres of the licence boundary, except for Berms F and G identified on the plan view of drawing 2 of 5 (see Section N Variations from Control and Operation Standards on this drawing).
3. Berm side slopes shall not be steeper than 2:1 (horizontal : vertical).
4. The minimum width of the berm crest shall be one metre.
5. Berms shall be covered with 50 millimetres (minimum) of topsoil, seeded and maintained.
6. See Typical Acoustic Berm detail on drawing 2 of 5 for additional information.
7. Existing vegetation within the southern, eastern and northern setbacks shall be maintained except where the berms, the central infiltration pond or the created wetland are required.
8. The existing tree screens within the western setback along 4th Line, contain two staggered rows of trees at irregular centres at the toe of the existing berms and shall be maintained except where the existing berms are required to be modified to meet the minimum height requirements identified in the Noise notes under section O.7 on this drawing.
9. Tree screens along 4th Line that were removed to facilitate berm construction, and the remaining areas not yet planted, shall be planted. The tree screen shall consist of two staggered rows of trees at irregular centres at the outside toe of the acoustic berms. The tree species to be planted shall include, but not limited to, white cedar, white spruce, white pine, Colorado spruce and balsam fir.
10. The tree screens along 4th Line shall remain as part of the final rehabilitated landform.

G. Site Dewatering

1. No water diversion and points of discharge to surface water features are proposed.

H. Extraction Sequence

1. Extraction shall occur in nine phases (Phases 1A, 1B, 2A, 2B, 2C, 3A, 3B, 4A and 4B) as shown on drawing 2 of 5.
2. Phases do not represent any specific or equal time period.
3. Progressive and final rehabilitation shall be completed in direct correlation to the development of the pit and quarry as the maximum extraction limits and depths are reached and enough area is available to ensure rehabilitation activities will not interfere with the production, stockpiling and processing of aggregate material.
4. Phase 1A
   - 4.1. Create the Central and South Infiltration Ponds as well as the North Infiltration Trenches. See Water Resources notes O.9.p to O.9.s and O.9.z on this drawing for additional information.
   - 4.2. Construct the four injection wells along the east boundary. See Water Resources note O.9.m on this drawing for additional information.
   - 4.3. Establish Berms 'A' to 'G' (see Noise note O.7.g on this drawing for additional information) using material from the Infiltration Ponds and Trenches.
   - 4.4. Finish extracting the sand and gravel material in a northerly direction to the top of bedrock.
   - 4.5. Backfill and vegetate the 2:1 side slopes along the east and south boundary of Phase 1A from existing grade to the top of bedrock with on-site material and/or imported excess soils.
   - 4.6. Commence quarry operations through sinking cut.
   - 4.7. Establish temporary sump on the quarry floor.
   - 4.8. Extract the bedrock material in a northerly direction.
   - 4.9. Extract lift 1 to a maximum depth between 469.0 to 471.0 masl.
   - 4.10. Extract lift 2 to a maximum depth between 458.9 to 460.7 masl.
   - 4.11. Progressive rehabilitation shall consist of backfilling the east and south boundary of Phase 1A from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
5. Phase 1B
   - 5.1. Finish extracting the sand and gravel material in a westerly direction to the top of bedrock.
   - 5.2. Backfill and vegetate the 2:1 side slopes along the west boundary of Phase 1B from existing grade to the top of bedrock with on-site material and/or imported excess soil.
   - 5.3. Extract the bedrock material in a westerly direction.
   - 5.4. Extract lift 1 to a maximum depth between 469.3 to 472.8 masl.
   - 5.5. Extract lift 2 to a maximum depth between 457.8 to 460.6 masl.
   - 5.6. Progressive rehabilitation shall consist of backfilling the west boundary of Phase 1B from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
   - 5.7. The buried tile drain shall be constructed prior to extraction commencing in Phase 2. See Water Resources notes O.9.n and O.9.o on this drawing for additional information.
   - 5.8. Prepare Phase 2A for extraction.
6. Phase 2A
   - 6.1. Strip the undisturbed portion of Phase 2A and use the overburden to backfill side slopes and the topsoil to dress areas that have been graded and are being prepared for final rehabilitation, where feasible, or temporarily stockpiled.
   - 6.2. Finish extracting the sand and gravel material in a northerly direction to the top of bedrock.
   - 6.3. Backfill and vegetate the 2:1 side slopes along the east boundary of Phase 2A from existing grade to the top of bedrock with on-site material and/or imported excess soil.
   - 6.4. Extract the bedrock material in a northerly direction.
   - 6.5. Extract lift 1 to a maximum depth between 470.3 to 472.9 masl.
   - 6.6. Extract lift 2 to a maximum depth between 460.6 to 461.2 masl.
   - 6.7. Progressive rehabilitation shall consist of backfilling the east boundary of Phase 2A from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
   - 6.8. Prepare Phase 2B for extraction.
7. Phase 2B
   - 7.1. Strip the undisturbed portion of Phase 2B and use the overburden to backfill side slopes and the topsoil to dress areas that have been graded and are being prepared for final rehabilitation, where feasible, or temporarily stockpiled.
   - 7.2. Finish extracting the sand and gravel material in a westerly direction to the top of bedrock.
   - 7.3. Backfill and vegetate the 2:1 side slopes along the west boundary of Phase 2B from existing grade to the top of bedrock with on-site material and/or imported excess soil.
   - 7.4. Extract the bedrock material in a westerly direction.
   - 7.5. Extract lift 1 to a maximum depth between 471.0 to 475.1 masl.
   - 7.6. Extract lift 2 to a maximum depth between 460.4 to 462.4 masl.
   - 7.7. Progressive rehabilitation shall consist of backfilling the west boundary of Phase 2B from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
   - 7.8. Prepare Phase 2C for extraction.
8. Phase 2C
   - 8.1. Strip Phase 2C and use the overburden to backfill side slopes and the topsoil to dress areas that have been graded and are being prepared for final rehabilitation, where feasible, or temporarily stockpiled.
   - 8.2. Extract the sand and gravel material in a northerly direction to the top of bedrock.
   - 8.3. Backfill and vegetate the 2:1 side slopes along the west, north and east boundary of Phase 2C from existing grade to the top of bedrock with on-site material and/or imported excess soil.
   - 8.4. Extract the bedrock material in a northerly direction.
   - 8.5. Extract lift 1 to a maximum depth between 472.4 to 476.0 masl.
   - 8.6. Extract lift 2 to a maximum depth between 460.7 to 464.4 masl.
   - 8.7. Progressive rehabilitation shall consist of backfilling the west, north and east boundary of Phase 2C from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
9. Phase 3A
   - 9.1. Extract material in a southerly direction.
   - 9.2. Extract lift 3 to a maximum depth between 438.1 to 441.5 masl.
   - 9.3. Progressive rehabilitation shall consist of backfilling the west, north and east boundary of Phase 3A from the floor of lift 3 to the bottom of lift 2 with on-site material and/or excess soil to establish a 2:1 side slope.
   - 9.4. Prepare Phase 3B for extraction.
10. Phase 3B
    - 10.1. Remove the scale house / office, scale and fuel storage tanks.
    - 10.2. Strip the undisturbed portion of Phase 3B and use the overburden to backfill side slopes and the topsoil to dress areas that have been graded and are being prepared for final rehabilitation, where feasible, or temporarily stockpiled.
    - 10.3. Extract the sand and gravel material in a southerly direction to the top of bedrock.
    - 10.4. Backfill and vegetate the 2:1 side slopes along the west boundary of Phase 3B from existing grade to the top of bedrock with on-site material and/or imported excess soil.
    - 10.5. Extract the bedrock material in a southerly direction.
    - 10.6. Extract lift 1 to a maximum depth between 471.9 to 473.4 masl.
    - 10.7. Extract lift 2 to a maximum depth between 460.4 to 461.2 masl.
    - 10.8. Extract lift 3 to a maximum depth between 438.3 to 439.5 masl.
    - 10.9. Progressive rehabilitation shall consist of backfilling the west boundary of Phase 3B from the floor of lift 1 to existing grade and the floor of lift 3 to the bottom of lift 2 with on-site material and/or excess soil to establish a 2:1 side slope.
11. Phase 4A
    - 11.1. Finish extracting the sand and gravel material in a southerly and/or westerly direction to the top of bedrock.
    - 11.2. Backfill and vegetate the 2:1 side slopes along the east and south boundary of Phase 4A from existing grade to the top of bedrock with on-site material and/or imported excess soil.
    - 11.3. Extract the bedrock material in a southerly direction before proceeding in a westerly direction.
    - 11.4. Extract lift 1 to a maximum depth between 466.3 to 470.0 masl.
    - 11.5. Extract lift 2 to a maximum depth between 454.2 to 457.9 masl.
    - 11.6. Extract lift 3 to a maximum depth between 439.1 to 440.3 masl.
    - 11.7. Progressive rehabilitation shall consist of backfilling the east and south boundary of Phase 4A from the floor of lift 1 to existing grade and the floor of lift 3 to the bottom of lift 2 with on-site material and/or excess soil to establish a 2:1 side slope.
12. Phase 4B
    - 12.1. Finish extracting the sand and gravel material in a westerly direction to the top of bedrock.
    - 11.1. Backfill and vegetate the 2:1 side slopes along the west and south boundary of Phase 4B from existing grade to the top of bedrock with on-site material and/or imported excess soil.
    - 11.2. Extract the bedrock material in a westerly direction.
    - 11.3. Extract lift 1 to a maximum depth between 466.7 to 470.9 masl.
    - 11.4. Extract lift 2 to a maximum depth between 454.0 to 458.0 masl.
    - 11.5. Extract lift 3 to a maximum depth between 437.9 to 439.3 masl.
    - 11.6. Progressive rehabilitation shall consist of backfilling the west and south boundary of Phase 4B from the floor of lift 1 to existing grade with on-site material and/or excess soil to establish a 2:1 side slope.
    - 11.7. Progressive rehabilitation shall also include backfilling the south boundary of Phase 4B from the floor of lift 3 to the bottom of lift 2 with on-site material and/or excess soil to establish a 2:1 side slope. The lift 2 and lift 3 excavation face along the west boundary of Phase 4B shall remain vertical.
    - 11.8. Once the resource is depleted, and all the required side sloping is established, pumping shall cease and the quarry will begin to fill with water until reaching an elevation of 487.0 masl.
    - 11.9. Backfill the pit south of the quarry operation with on-site material and/or excess soil to establish the grades, slopes and elevations depicted on drawing 4 of 5.

I. Extraction Details

1. All trees within five metres of the excavation face inside the limit of extraction shall be removed.
2. Topsoil and overburden shall be stripped to a maximum 2:1 (horizontal : vertical) slope adjacent to the limit of extraction.
3. The existing grade, maximum predicted water table and maximum depth of extraction within each Phase are indicated by spot elevations on drawing 2 of 5.
4. The maximum lift height in the pit shall be 15 metres and shall comply with Ministry of Labour regulatory requirements.
5. The maximum depth of sand and gravel is 30 metres and shall be extracted in a minimum of two lifts.
6. The pit within the quarry limit of extraction shall be extracted to the top of bedrock.
7. Along the perimeter of the quarry, a minimum six metre wide ledge shall be provided at the toe of the 2:1 side slopes from existing grade to top of bedrock in order to accommodate an access road and safety rock barrier during operations.
8. The pit outside the quarry limit of extraction shall be extracted to the maximum depths identified by spot elevations on drawing 2 of 5 and shall remain 1.5 metres above the established water table, except as noted in notes 9 and 10 below.
9. The Central Infiltration Pond shall be excavated to the top of bedrock (476.4 to 477.6 masl).
10. The South Infiltration Pond shall be excavated to 1.0 metres above the top of bedrock on the west half (484.8 to 490.7 masl) and to the top of bedrock on the east half (480.8 to 484.2 masl).
11. The maximum lift height in the quarry shall be 27 metres.
12. The maximum depth of limestone in Phase 1A is 33 metres and shall be extracted in two lifts.
13. The maximum depth of limestone in Phase 1B is 35 metres and shall be extracted in two lifts.
14. The maximum depth of limestone in Phase 2A is 28 metres and shall be extracted in two lifts.
15. The maximum depth of limestone in Phase 2B is 33 metres and shall be extracted in two lifts.
16. The maximum depth of limestone in Phase 2C is 31 metres and shall be extracted in two lifts.
17. The maximum depth of limestone in Phase 3A is 26 metres and shall be extracted in one lift.
18. The maximum depth of limestone in Phase 3B is 56 metres and shall be extracted in three lifts.
19. The maximum depth of limestone in Phase 4A is 50 metres and shall be extracted in three lifts.
20. The maximum depth of limestone in Phase 4B is 54 metres and shall be extracted in three lifts.
21. The quarry lifts will follow the geological formations across the site.
22. Each quarry lift may be extracted in multiple lifts due to the variable heights in the geological formations. Sub lifts will generally be up to 10 metres in height.
23. The location of the sump on the quarry floor will vary as extraction progresses. See Water Resources note O.9.t on this drawing for additional information.
24. The final extraction face for quarry lifts 1 and 3 shall be backfilled to reduce groundwater inflow (see Water Resource notes O.9.l and O.9.s on this drawing for additional information). The final excavation face for quarry lift 2 and a portion of quarry lift 3 in the southwest corner of the quarry (see drawing 4 of 5 for location) shall not be backfilled (see Section N Variations from Control and Operation Standards on this drawing).
25. Due to the variable vertical resource depth in lift 1 of the quarry, the horizontal bench for lift 1 (identified on drawing 2 of 5) will vary in width. The bench shall include a minimum six metre wide ledge at the toe of the backfilled 2:1 side slopes from the top of bedrock in order to accommodate an access road and safety rock barrier.
26. Due to material quality, the material in lift 1 shall be extracted and processed on its own. Material in lifts 2 and 3 can be extracted and processed together.
27. The pit operation shall occur concurrently with the quarry operation.
28. Once the quarry operation advances to Phase 4B, it is anticipated the pit will be depleted and pit operations will cease.
29. Aggregate material may be imported on-site for the purposes of resale and blending.
30. Aggregate stockpiles (including recyclable material) shall be located within the limit of extraction and remain a minimum of 30 metres from the licence boundary (except where the licence boundary abuts existing licence # 3512 - see Section N Variations from Control and Operation Standards on this drawing) and 90 metres from a property with a residential use.
31. There are two scale houses / offices and scales on-site.
32. Portable office trailers shall be permitted on-site and will be located on the pit and quarry floor as required by site operations.
33. All buildings and structures (including portable trailers and sheds) shall remain a minimum of 30 metres from the licence boundary (except the scale house / office and scale on Lot 12, Concession 3 - see Section N Variations from Control and Operation Standards on this drawing) and 90 metres from a property with a residential use.
34. Internal haul road locations will vary as extraction progresses and will be located on the pit and quarry floor.
35. As excavation reaches the limit of extraction or maximum depth in each Phase, progressive rehabilitation shall commence.

J. Equipment and Processing

1. Equipment used on-site may include portable crushers (both primary and secondary), a portable screening plant, a portable wash plant, rock drills, generators, stackers, conveyors, scrapers, bulldozers, excavators, extraction loaders, shipping loaders, haul trucks, highway trucks, water trucks, fuel trucks, maintenance trucks, explosive trucks, pickup trucks, and tree clearing equipment.
2. Processing shall be located within the processing area identified on drawing 2 of 5 and remain a minimum of 30 metres from the licence boundary and 90 metres from a property with a residential use.

K. Wash Pond and Sump

1. Wash ponds and a sump shall be permitted on the quarry floor in accordance with the Environmental Compliance Approval (ECA) and Permit to Take Water (PTTW) requirements. The pond and sump will move throughout the life of the operation as extraction progresses horizontally and vertically.

L. Fuel Storage

1. Fuel storage shall be permitted on-site.
2. Above ground fuel storage tanks exist in two locations on-site. The first is adjacent to the scale house on Lot 12, Concession 3 and the second is adjacent to the scale house on Lot 13 Concession 3, as shown on drawing 2 of 5.
3. The fuel storage tanks shall be maintained and replaced in accordance with the Liquid Fuels Handling Code adopted as part of Ontario Regulation 217/01 (Liquid Fuels) under Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) made under the Technical Standards and Safety Act, 2000.
4. Fuel trucks may be used to transfer fuel to on-site equipment in accordance with the Liquid Fuels Handling Code.
5. The Spills Contingency Plan shall be adhered to in the event of a spill. The Spills Contingency Plan shall be available on-site and all employees and contractors shall be informed and required to comply with this plan.

M. Scrap and Recycling

1. Scrap may be stored on-site within the Recycling and Scrap Area identified on drawing 2 of 5 and shall be removed on an ongoing basis.
2. Scrap shall only include material generated directly as a result of the aggregate operation such as refuse, debris, scrap metal, lumber, discarded machinery and equipment.
3. All fluids shall be drained from any discarded equipment or machinery prior to storage and disposed of in accordance with the Environmental Protection Act.
4. Scrap shall not be stored within 30 metres of any body of water, or the licence boundary.
5. Recycling of asphalt and concrete shall be permitted on-site.
6. Recyclable asphalt materials shall not be stockpiled within:
   - 6.1. 30 metres of any waterbody or man-made pond; or
   - 6.2. two metres of the surface of the established groundwater table
7. Recyclable material shall be kept within the Recycling and Scrap Area identified on drawing 2 of 5.
8. Rebar or other structural material shall be separated from recyclable material during processing and placed in a designated scrap pile on-site which shall be removed on an ongoing basis.
9. Recycled aggregate shall be removed on an on-going basis.
10. Recycling activities shall not interfere with the operational phases of the site or with rehabilitation.
11. Once the site is depleted, no further importation of recyclable material shall be permitted.
12. Once final rehabilitation has been completed and approved in accordance with the site plan, all recycling operations shall cease.
13. The site shall be kept in an orderly condition.

N. Variations from Control and Operation Standards

Section 0.13 Standard	Variation	Rationale
(1) 1 & 2	1. A gate shall not be required at the two access points for the farmhouse on Lot 12, Concession 3 on 4th Line. 2. A gate shall not be required where haul roads cross the common licence boundary with licence # 3512.	1. This will ensure uninhibited access for the occupants of the farmhouse and their guests. 2. This will eliminate constraints to the movement of equipment between the licences which have a common boundary.
(1) 9	Excavation shall occur within a portion of the east setback for Lot 11, Concession 3.	Excavation is required to facilitate construction associated with the Central Infiltration Pond.
(1) 10.i.	A 0 metre setback shall be permitted where the licence boundary abuts licence # 3512 in the location shown on the plan view of drawing 2 of 5.	This will enable material to be extracted along the common licence boundary and for rehabilitation to transition between this licence and licence # 3512.
(1) 11	Aggregate / overburden shall be removed from a portion of the east setback for Lot 11, Concession 3.	Removal of aggregate / overburden is required to facilitate construction associated with the Central Infiltration Pond.
(1) 13.i.	1. Aggregate, topsoil and overburden stockpiles as well as processing equipment may be located within 30 metres of the common licence boundary with licence # 3512. 2. The scale and scale house on Lot 12, Concession 3 shall be permitted within 30 metres of the licence boundary.	1. The licensee has a common boundary agreement with licence # 3512. 2. The scale and scale house already exist in this location.
(1) 16	Berms F & G identified on the plan view of drawing 2 of 5 shall be permitted within three metres of the licence boundary.	The licensee has a common boundary agreement with licence # 3512.
(1) 19.i.	The rehabilitate pit side slopes which are west, north and east of the quarry operation shall be 2:1 (horizontal : vertical).	This will maximize the footprint of the quarry operation.
(1) 19.ii.	Portions of the quarry face shall remain vertical.	The Level 1 & 2 Hydrogeological Assessment recommended portions of the quarry face remain vertical for water management purposes.
(3) (a)	Fencing shall not be erected along the licence boundary where it traverses the wooded areas or along the common licence boundary with licence # 3512.	The licence boundary shall be demarcated with painted marker posts (1.8 metres in height) every 30 metres or less in order to maintain visibility from one marker post to the next.

O. Technical Recommendations

1. Agricultural
   - a. All of the recommendations of the technical reports shall be implemented to minimize and prevent impacts to adjacent and surrounding agricultural uses and operations.
   - b. The Agricultural area shall be rehabilitated in accordance with the Pit Floor Agricultural Rehabilitation Sequence schematic on drawing 4 of 5 to ensure best practices are followed throughout the progressive rehabilitation of the pit/quarry.
   - c. Topsoil and subsoil shall be replaced in the agricultural rehabilitation area at the following depths: 200 mm for Topsoil and 300 mm for Subsoil.
   - d. Soil shall be handled under suitable conditions. Travel over soils in the agricultural rehabilitation area shall be minimized to reduce compaction. Ripping / tilling the soil shall occur, where necessary, to alleviate soil compaction and shall avoid the mixing of soil materials / layers during the process.
   - e. Once grading is completed within the agricultural area, a vegetation cover (such as perennial crops) shall be immediately established within the agricultural rehabilitation area in order to reduce erosion, add organic matter to the soil and improve soil structure. A grass-legume cover crop shall be established throughout the agricultural rehabilitation area and maintained for up to five years and ploughed under annually in order to promote and increase organic matter. Alternatively, field crops (e.g. wheat, soy, corn, hay) shall be established immediately following rehabilitation grading in the agricultural area.
   - f. An Agricultural Rehabilitation Monitoring Program Report shall be submitted annually by a qualified professional once the final grades have been established in the agricultural rehabilitation area and will continue until it can be demonstrated that the agricultural area has been rehabilitated back to an agricultural condition. The report shall document the stages of the rehabilitation process and include details on matters such as the following:
     - f.a. Evaluate the rehabilitated agricultural condition and soil capability;
     - f.b. Documentation on the alleviation of any soil compaction, drainage provisions, erosion control, etc.;
     - f.c. Description of how the soil has been replaced and any amendments added (fertilizer, organic matter);
     - f.d. Description of any seeding or planting that has occurred;
     - f.e. A review of previous rehabilitation management activities and observations regarding field conditions;
     - f.f. Report of agricultural activity (crops grown, annual yields) and any anecdotal feedback from the farmer;
     - f.g. Review of drainage issues and recommended mitigation measures as necessary;
     - f.h. Summary of post rehabilitation soil capability; and
     - f.i. Make recommendations on future agricultural rehabilitation activities and any needed adjustments to best management practices.

       The report shall include observational documentation, records of activity and quantitative information on soil conditions. These reports will be appended as part of annual ARA Compliance Assessment Reports.
   - g. Best management practices shall be implemented with respect to the storage and application of organic material, fertilizers and pesticides.
2. Air Quality
   - a. The licensee shall apply water or another provincially approved dust suppressant to internal haul roads and processing areas, as necessary to mitigate dust, if the pit or quarry is located within 1,000 metres of a sensitive receptor.
   - b. The licensee shall equip any processing equipment that creates dust with dust suppressing or collection devices if it is located within 300 metres of a sensitive receptor.
   - c. The licensee shall obtain environmental compliance approval under the Environmental Protection Act where required to carry out operations at the pit or quarry.
   - d. The site shall operate in accordance with a Best Management Practices Plan for Dust (dated June 13, 2024), which may be amended from time to time, considering actual impacts and operational considerations. The recommendations in the Best Management Practices Plan for Dust are based on the maximum daily production rates. At lower production rates, the control measures specified in the Best Management Practices Plan for Dust can be reduced accordingly, provided dust remains mitigated on site.
3. Archaeology
   - a. The Euro-Canadian Madill (BaHb-17) site has been documented within the subject property by Archaeological Services Inc. in 2016. The 2017 Stage 3 excavations at the site indicated that it meets the provincial criteria for cultural heritage value or interest and that any potential impacts to the site area or its buffer must be mitigated through its complete Stage 4 recording and excavation, in accordance with Ministry of Citizenship and Multiculturalism's 2011 Standards and Guidelines for Consultant Archaeologists.
     - a.a. As outlined in the recommendations provided in the report on the Stage 3 Archaeological Assessment of the Madill site (BaHb-17) (Archaeological Services Inc. 2018b), the Stage 4 mitigation of impacts to the site shall commence with the hand-excavation of additional one-metre square units around high-yielding deposits, initially placed around Stage 3 units 490N-200E, 495N-200E, 500N200E, 500N-205E and 505N-200E. These excavations shall continue until yields drop to 150 artifacts per square.
     - a.b. Following the block excavation, mitigation shall continue with the mechanical removal of the plough zone via Gradall or backhoe equipped with a smooth bucket across the site area as defined by the Stage 3 assessment. This stripped area shall include a buffer of at least 10 metres of subsoil free of subsurface features. The exposed subsoil shall then be cleaned by shovel or trowel and the surface examined for cultural features. Any cultural features shall then be fully hand excavated and documented.
     - a.c. If a Stage 4 Assessment is completed and accepted by the Ministry of Citizenship and Multiculturalism, a future Aggregate Resources Act site plan amendment shall be required to integrate the cleared Madill site (BaHb-17) with the remainder of the extraction area.
   - b. A review of past archaeological work undertaken within the subject property determined that approximately 93% has been previously assessed via Stage 1 and Stage 2 Archaeological Assessment. The remaining 7%, consisting of woodlot areas in the northeast and southeast, lies outside the current and proposed limits of extraction. Any proposed land alteration of these unassessed areas shall be preceded by a Stage 2 Archaeological Assessment. Such assessment(s) shall be conducted in accordance with the Ministry of Citizenship and Multiculturalism's 2011 Standards and Guidelines for Consultant Archaeologists, in order to identify any archaeological resources that may be present. Woodlots shall be assessed by means of test pit survey. Areas deemed during the Stage 2 assessment process to be disturbed or of no potential due to factors of slope or drainage shall be appropriately documented.
   - c. It is recommended that the balance of the subject property situated beyond the area of the Madill site (BaHb-17) and its protective 10-metre buffer zone, and excluding the unassessed woodlot areas in the northeast and southeast be cleared for development. A map of the property with the detailed location of the site and its 10-metre buffer zone can be seen in supplementary documentation submitted alongside the Stage 1 Archaeological Assessment. It is requested that the Ministry of Citizenship and Multiculturalism provide a letter confirming that there are no further concerns with regard to alterations for the balance of the property, following Sections 7.8.5 and 7.9.5 of the Ministry of Citizenship and Multiculturalism's 2011 Standards and Guidelines for Consultant Archaeologists. Until the acceptance of the Stage 1 Archaeological Assessment and the completion of all required Stage 4 mitigation work, the following avoidance measures shall be completed:
     - c.a. A temporary barrier (e.g. snow fence) shall be erected with a minimum 10 metre protective buffer around the Madill site (BaHb-17) limits (as determined by the Stage 3 investigations) and its installation verified by a licensed archaeologist;
     - c.b. Avoidance instructions and mapping illustrating the "no-go" areas around the site shall be issued to all personnel during construction;
     - c.c. The "no-go" area shall be explicitly drawn and labelled with relevant avoidance instructions on all development plans; and
     - c.d. The proponent shall issue written confirmation regarding their commitment to implementing the strategy and confirmation that ground alterations (e.g., servicing, landscaping) will avoid the archaeological site in question and its protective buffer area.
   - d. It has been noted that should the proposed Pit and Quarry operation be approved, the height of the existing berm which partly overlays the Madill site (BaHb-17) 10-metre protective buffer will need to be increased by one metre. To achieve this, some disturbance of the berm itself may be necessary in order to place fill atop it. The following procedure shall be followed:
     - d.a. Any potential earthworks associated with this berm taking place within the Madill site (BaHb-17) 10-metre protective buffer shall be monitored by a licensed archaeologist, in order to ensure that there are no impacts to the site area. A Stage 4 Assessment shall not be required to complete this work.
   - e. Should deeply buried archaeology remains be found during the course of site preparation and/or extraction related activities, the Ministry of Citizenship and Multiculturalism shall be notified.
   - f. In the event human remains are encountered during construction or extraction activities, the licensee shall immediately contact both the Ministry of Citizenship and Multiculturalism and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services (MGCS).
4. Blasting
   - a. An attenuation study shall be undertaken by an independent blasting consultant during the first 12 months of operation in order to obtain sufficient quarry data for the development of site specific attenuation relations. This study shall be used to confirm the applicability of the initial guideline parameters and assist in developing future blast designs.
   - b. Blasts shall be designed and loaded adhering to Table 2: Maximum Explosive Load at Set Offset Distances – 12.5 mm/sec as well as Table 3: Maximum Explosive Load at Set Offset Distances to Receptors in Front of the Blast – 128 dB(L) until the attenuation study is completed. Upon completion of the attenuation study, a site-specific attenuation relation shall be developed and shall be utilized to develop a new load chart to be utilized going forward.
   - c. All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive receptors adjacent the site, or closer, with a minimum of two (2) digital seismographs – one installed in front of the blast and one installed behind the blast. Monitoring shall be performed by an independent third party engineering firm with specialization in blasting and monitoring.
   - d. The guideline limits for vibration and overpressure shall adhere to standards as outlined in the Model Municipal Noise Control By-law publication NPC 119 (1978) or any such document, regulation or guideline which supersedes this standard.
   - e. In the event of an exceedance of NPC 119 limits or any such document, regulation or guideline which supersedes this standard, blast designs and protocol shall be reviewed prior to any subsequent blasts and revised accordingly in order to return the operations to compliant levels.
   - f. Orientation of the aggregate extraction operation shall be designed and maintained so that the direction of the overpressure propagation and flyrock from the face shall be away from structures as much as possible.
   - g. Blast designs shall be continually reviewed with respect to fragmentation, ground vibration and overpressure. Blast designs shall be modified as required to ensure compliance with applicable guidelines and regulations. Decking, reduced hole diameters and sequential blasting techniques shall be used to ensure minimal explosives per delay period initiated.
   - h. Blasting procedures such as drilling and loading shall be reviewed on a yearly basis and modified as required to ensure compliance with industry standards.
   - i. Detailed blast records shall be maintained in accordance with current industry best practices.
   - j. The guideline for flyrock shall adhere to the standard as outlined in the Aggregate Resources Act O. Reg 244/97, specifically "A licensee or permittee shall take all reasonable measures to prevent flyrock from leaving the site during blasting if a sensitive receptor is located within 500 metres of the boundary of the site" or any such document, regulation or guideline which supersedes this standard.
5. Cultural Heritage
   - a. There are no site plan recommendations.
6. Natural Environment

   Operational
   - a. The pit limit of extraction was previously approved on Aggregate Resource Act Licences 626199, 129167 and 625155 and shall be maintained for this licence. The quarry limit of extraction shall be a minimum of 15m from wetlands and 10m from significant woodlands that are located outside of the pit limit of extraction as shown on Drawing 1 of 5.
   - b. There shall be no site disturbance between the pit extraction limit and the protected wetlands and significant woodlands as shown on Drawing 1 of 5 with the exception of the following that are located in the southeast corner of the licence boundary: the proposed acoustic berm, the proposed central infiltration pond and the created wetland.
   - c. The areas located between the pit limit of extraction and the edges of the protected wetlands and significant woodlands, with the exception of the three areas identified above, as shown on Drawing 1 of 5, shall be allowed to passively re-naturalize and will be supplemented with targeted native species plantings and seeding. The native tree species will include: White Pine (Pinus strobus), Red Maple (Acer rubrum) and Trembling Aspen (Populus tremuloides) with smaller numbers of Sugar Maple (Acer saccharum), Black Cherry (Prunus serotina), Hop Hornbeam (Ostrya virginiana), American Basswood (Tilia americana). The native shrub species will include: Gray Dogwood (Cornus racemosa), Staghorn Sumac (Rhus typhina), Sandbar Willow (Salix interior) and Nannyberry (Viburnum lentago). The native meadow species (Ontario Seed Company Mixture "CVC7") will include: Black-eyed Susan (Rudbeckia hirta), Blue Wood Aster (Symphyotrichum cordifolium), Canada Anemone (Anemone canadensis), Canada Goldenrod (Solidago canadensis), Common Milkweed (Asclepias syriaca), Evening Primrose (Oenothera biennis), Grass-leaved Goldenrod (Euthamia graminifolia), Meadow Sedge (Carex granularis), New England Aster (Symphyotrichum novae-angliae), Riverbank Wild Rye (Elymus riparius), Virgin's Bower (Clematis virginiana) and Wild Bergamot (Monarda fistulosa).
   - d. Observations of the Species at Risk Bank Swallow (Riparia riparia) or their habitats within the pit/quarry operational area shall be addressed through implementation of Best Management Practices identified for the species and in accordance with the requirements of Ontario Regulation 242/08.
   - e. Prior to site alteration for creation of the wash plant/stockpile area, and the southern and central infiltration ponds in the south end of the site, an updated habitat assessment and surveys for the Species at Risk Eastern Meadowlark (Sturnella magna) shall be completed. If it is determined that this species still occupies habitat within these areas, habitat removal activities shall be registered with the Ministry of Environment, Conservation and Parks (MECP) through a Notice of Activity, and creation and implementation of a Mitigation Plan in accordance with Ontario Regulation 242/08.
   - f. All tree removals shall be completed outside of the period April 1st to September 30th unless otherwise approved by a qualified biologist through completion of a bird nest search and through confirmation that the tree does not provide suitable bat habitat. Nest searches shall only be completed within 48 hours of the tree removals required between April 1 to September 30th.
   - g. All non-tree vegetation removals shall be completed outside of the period April 1st to August 31st unless otherwise approved by a qualified biologist through completion of a bird nest search of the vegetation. Nest searches shall only be completed within 48 hours of the vegetation removals required between April 1st to August 31st.
   - h. Water shall be managed on site in accordance with the water resources technical recommendations on this drawing.
   - i. Dust impacts shall be mitigated in accordance with the air quality technical recommendations on this drawing.
   - j. Artificial lighting shall be shielded or directed away from the protected wetlands and significant woodlands as shown on Drawing 1 of 5.
   - k. When operations and rehabilitation work is occurring adjacent to the protected wetlands and significant woodlands as shown on Drawing 1 of 5 and has the potential for sedimentation and erosion into the features, silt fencing shall be installed, regularly inspected and maintained until the area is adequately vegetated.
   - l. A Spill Response Plan shall be developed and implemented to ensure no release of hazardous materials from the site or into the protected wetlands and significant woodlands as shown on Drawing 1 of 5.

   Wetland Creation
   - m. A new wetland shall be created in the area as shown on Drawing 2 of 5 within three years of issuance of the ARA license for the pit/quarry. The following steps shall be followed for the creation of the new wetland.

   Year 1
   - n. The grading limit for the new wetland shall be staked to demarcate the extent of the feature.
   - o. The removal of vegetation within the envelope of the new wetland shall occur outside of April 1st to August 31st.
   - p. The new wetland shall be graded and include a low-permeability lens of silt-clay across the bed of the new wetland to facilitate water retention and conditions that will support hydrophytic vegetation. The wetland creation area shall be overlain with a minimum of 20 cm of topsoil. Site photographs shall be taken to document the work.
   - q. A nurse crop of proso millet (Panicum miliaceum), annual rye (Lolium multiflorum) or oats (Avena sativa), or any combination of these species, shall be applied at a rate of 25 kg/ha.

   Year 2
   - r. In the early spring of Year 2 (late March or early April), native seed mixtures shall be applied to the wetland creation area. Two seed mixtures shall be applied in separate zones, each at a rate of 25 kg/ha: a "Riparian Mixture" intended for the saturated wetland fringe and an "Upland Mixture". The riparian mixture will contain: Blue Vervain (Verbena hastata), Blue Flag Iris (Iris versicolor), Purple-stemmed Aster (Symphyotrichum puniceum), Fox Sedge (Carex vulpinoidea), Green Bulrush (Scirpus atrovirens), New England Aster (Symphyotrichum novae-angliae), Rice Cutgrass (Leersia oryzoides), Soft Rush (Juncus effusus), Spotted Joe Pye Weed (Eutrochium maculatum), Square-stemmed Monkeyflower (Mimulus ringens), Swamp Milkweed (Asclepias incarnata), Virginia Wild Rye (Elymus virginicus), Wool Grass (Scirpus cyperinus). The upland mixture will contain: Black-eyed Susan (Rudbeckia hirta), Blue Wood Aster (Symphyotrichum cordifolium), Canada Anemone (Anemone canadensis), Canada Goldenrod (Solidago canadensis), Common Milkweed (Asclepias syriaca), Evening Primrose (Oenothera biennis), Grass-leaved Goldenrod (Euthamia graminifolia), Meadow Sedge (Carex granularis), New England Aster (Symphyotrichum novae-angliae), Riverbank Wild Rye (Elymus riparius), Virgin's Bower (Clematis virginiana) and Wild Bergamot (Monarda fistulosa). Site photographs shall be taken to document the spring hydrological condition within the created wetland.
   - s. If erosion is evident in the area seeded in Year 1, additional nurse crop seed shall be applied to these areas in the spring of Year 2.
   - t. In mid to late-spring of Year 2, tree and shrub plantings shall be installed in the riparian and upland areas surrounding the shallow water. All woody species shall be planted before June 1st. Native trees shall be planted to a density that is equivalent to 1,200 trees/ha and will include White Pine (Pinus strobus), Red Maple (Acer rubrum), Trembling Aspen (Populus tremuloides). Native shrub shall be planted at a ratio of one shrub to four trees and will include Sandbar Willow (Salix interior) and Nannyberry (Viburnum lentago) in the saturated fringe area and Gray Dogwood (Cornus racemosa), Staghorn Sumac (Rhus typhina) in the upland area adjacent to the wetland. All trees and shrubs shall be planted into the graded topsoil using hand tools, an auger or a mini-excavator. All material shall comprise of whips (bare root or plug) and small potted material (2-to-5-gallon pot size).
   - u. Wildlife microhabitat features shall be installed within the wetland prior to tree and shrub planting. Logs and woody debris shall be placed within the wetland, including along the perimeters of the permanent and temporary pond features. Rock piles and/or concrete slabs shall be placed within seasonally drier portions of the wetland.

   Wetland Removals
   - v. The existing wetlands located within the footprint of the central infiltration pond shall occur outside of the period of October 1st to May 15th.
   - w. Immediately prior to the removal of the wetlands, a wildlife salvage shall be undertaken to capture and relocate herpetofauna from the wetlands. The wildlife salvage shall be undertaken in accordance with the following:
     - w.a. Wildlife exclusion fencing that is suitable to inhibit salamanders and anurans shall first be installed around the habitat features.
     - w.b. If required, the wetland ponds shall be partially drained to allow for the wildlife salvage to be undertaken, and then progressively drained in conjunction with the wildlife salvage until they have been fully or near-fully drained.
     - w.c. The wetland features shall be comprehensively searched by qualified biologists and captured individuals shall be documented by the biologists prior to release in suitable wetlands on-site.
     - w.d. The wildlife exclusion fencing shall remain installed and functional until the habitat features are removed.

   Rehabilitation
   - x. Outside of the agricultural rehabilitation area, ecological restoration and enhancement of the site shall be undertaken during rehabilitation and includes the following features: Native meadow; Woodland; Side Slopes; and a Quarry Lake Littoral Zone.

   Native Meadow
   The native meadow area as shown on Drawing 4 of 5 shall be created in the following steps:
   - y. Grading of soil and placement of at least 20 cm of topsoil shall occur across the entire meadow restoration area. This shall be completed outside of the breeding bird window (April 1st to August 31st).
   - z. The meadow restoration area shall be seeded in April or May with Red Clover and Alfalfa. The area shall be seeded at a rate of 10 kg/ha.
   - aa. A native seed mix of Black-eyed Susan (Rudbeckia hirta), Blue Wood Aster (Symphyotrichum cordifolium), Canada Anemone (Anemone canadensis), Canada Goldenrod (Solidago canadensis), Common Milkweed (Asclepias syriaca), Evening Primrose (Oenothera biennis), Grass-leaved Goldenrod (Euthamia graminifolia), Meadow Sedge (Carex granularis), New England Aster (Symphyotrichum novae-angliae), Riverbank Wild Rye (Elymus riparius), Virgin's Bower (Clematis virginiana) and Wild Bergamot (Monarda fistulosa) shall be seeded via hand-broadcasting in the spring, either before or after seeding the Red Clover and Alfalfa. All seeding shall be completed by June 1st. The native seed mixture shall be applied at 25 kg/ha.
   - ab. 50 equally-spaced trees shall be planted along the western boundary in the spring either concurrent with the seeding work, or in the following year.
   - ac. The tree stock shall be potted material (2-to-5-gallon pot size) and species may include White Pine, Red Maple or Trembling Aspen. A 5-gallon pail of wood mulch, or an equivalent coconut fibre mat, shall be placed at the base of each tree following the planting.
   - ad. The successful establishment of the meadow area shall entail the establishment of 95-100% herbaceous cover after 2 growing seasons and the accumulation of thatch.

   Woodland
   The woodland area as shown on Drawing 4 of 5 shall be created in the following steps:
   - ae. The woodland area shall be graded and shall include vernal pool features.
   - af. 20 cm of topsoil shall be graded across the area.
   - ag. The area shall be cultivated to minimize soil compaction.
   - ah. Following cultivation, a nurse crop of proso millet (Panicum miliaceum), annual rye (Lolium multiflorum) or oats (Avena sativa), or any combination of these species, shall be applied at a rate of 25 kg/ha.
   - ai. A native meadow seed mix consisting of the following species shall be applied at a rate of 25 kg/ha. The native seed mix shall be planted in conjunction with or following application of the nurse crop. Species: Black-eyed Susan (Rudbeckia hirta), Blue Wood Aster (Symphyotrichum cordifolium), Canada Anemone (Anemone canadensis), Canada Goldenrod (Solidago canadensis), Common Milkweed (Asclepias syriaca), Evening Primrose (Oenothera biennis), Grass-leaved Goldenrod (Euthamia graminifolia), Meadow Sedge (Carex granularis), New England Aster (Symphyotrichum novae-angliae), Riverbank Wild Rye (Elymus riparius), Virgin's Bower (Clematis virginiana) and Wild Bergamot (Monarda fistulosa).
   - aj. Nursery stock of the following native tree species such as White Pine (50% of the area), Trembling Aspen, Red Maple, Sugar Maple, Black Cherry, Hop Hornbeam and American Basswood shall be planted to a density that is equivalent to 1,200 trees/ha. Plantings within the vernal pool features shall be planted at a higher density of 1,400 trees/ha. Planting of nursery stock may be supplemented through tree seed collection within the adjacent woodland features.
   - ak. The following native shrub species shall be planted at a ratio of one shrub to four trees: Gray Dogwood and Staghorn Sumac.
   - al. Taking into account anticipated tree mortality, the goal of the woodland area is to include approximately 2500 trees and 1000 shrubs after three growing seasons.

   Side Slopes
   The side slope area as shown on Drawing 4 of 5 shall be created in the following steps:
   - am. A nurse crop of proso millet, annual rye or oats, or any combination of these species, shall be applied at a rate of 25 kg/ha once final grading of the side slopes is completed.
   - an. A native meadow seed mix consisting of asters and goldenrods shall be applied via hand broadcasting to the area at a rate of 25 kg/ha. The native meadow seed mix shall be planted in conjunction with or following the application of the nurse crop.
   - ao. Nodes of trees and shrubs seedlings consisting of White Pine, Trembling Aspen, Staghorn Sumac and Gray Dogwood shall be planted in the early spring at various locations in the area spaced approximately every 100 m in staggered elevations. Along the side slopes adjacent to the eastern licence boundary between the significant woodlands identified on Drawing 1 of 5, the nodes shall be created every 50 m in this area.
   - ap. Each tree and shrub node shall include 15 stems of plug stock for each species, for a total of 60 planted stems per node.

   Quarry Lake Littoral Zone
   The Quarry Lake Littoral Zone area as shown on Drawing 4 of 5 shall be created in the following steps:
   - aq. Seeding of emergent species along the nearshore area around the perimeter of the lake shall include the following native species: Broad-leaved Cattail, Broad-leaved Arrowhead, Water Plantain, Soft Rush, Soft-stemmed Bulrush, White Water Lily and Variegated Pond Lily.
   - ar. The seeding shall be completed at any time of the year outside of frozen conditions once the final lake level has been achieved.
   - as. Seeding in this area shall be completed via hand broadcasting at a rate of 4 kg/ha of shoreline. The species mixture will include: Blue Vervain (Verbena hastata), Blue Flag Iris (Iris versicolor), Purple-stemmed Aster (Symphyotrichum puniceum), Fox Sedge (Carex vulpinoidea), Green Bulrush (Scirpus atrovirens), New England Aster (Symphyotrichum novae-angliae), Rice Cutgrass (Leersia oryzoides), Soft Rush (Juncus effusus), Spotted Joe Pye Weed (Eutrochium maculatum), Square-stemmed Monkeyflower (Mimulus ringens), Swamp Milkweed (Asclepias incarnata), Virginia Wild Rye (Elymus virginicus), Wool Grass (Scirpus cyperinus).

   Monitoring During Operations and Rehabilitation
   - at. In addition to the Water Resources Monitoring Program, the following Ecological Monitoring Program shall be implemented during operations and rehabilitation of the license.
   - au. In the wetlands identified on the ecological monitoring location schematic, amphibian call surveys shall be completed in accordance with the Marsh Monitoring Program amphibian survey protocol (BSC 2009). The monitoring of wetlands located outside of the licence boundary shall be conducted subject to landowner permission/assess being granted. The above surveys shall be completed as follows:
     - au.a. 2 years prior to commencement of quarry operation, monitoring shall be undertaken to establish a baseline condition, except for in the created wetland.
     - au.b. During years 1 to 5 of the quarry operation, monitoring shall be undertaken annually.
     - au.c. Commencing in year 6 and continuing for the duration of the operations and 3 years after rehabilitation, monitoring shall be undertaken bi-annually.
   - av. In the fish habitat identified on the ecological monitoring location schematic, electrofishing shall be completed to track fish species presence and occurrence of sensitive species (e.g., Brook Trout) subject to landowner permission/assess being granted. The above surveys shall be completed as follows:
     - av.a. 2 years prior to commencement of quarry operation, monitoring shall be undertaken to establish a baseline condition.
     - av.b. During years 1 to 5 of the quarry operation, monitoring shall be undertaken annually.
     - av.c. Commencing in year 6 and continuing for the duration of the operations and rehabilitation, monitoring shall be undertaken bi-annually.
   - aw. In the locations identified on the ecological monitoring location schematic, continuous water temperature monitoring shall be completed through the use of data loggers for April through November, to track the maintenance of cool/coldwater watercourse thermal regimes subject to landowner permission/assess being granted. The above surveys shall be completed as follows:
     - aw.a. 2 years prior to commencement of quarry operation, monitoring shall be undertaken to establish a baseline condition.
     - aw.b. Commencing in year 1 of quarry operation and continuing for the duration of the operations and rehabilitation, monitoring shall be undertaken annually.
   - ax. Water levels within the created wetland shall be monitored through the use of continuous water level data loggers and staff gauges for April through November to ensure that the desired seasonal hydrological conditions are being maintained throughout the quarry operational period. These results will be used to determine the amount of water to be pumped from the quarry sump or clear water pond. No process water will be discharged from the quarry directly into the created wetland prior to it being treated. During rehabilitation, the land surrounding the created wetland shall be graded in accordance with Drawing 4 of 5 to provide surface water to this feature and no further pumping shall be required once the surrounding landform is established.
   - ay. The following inspections of restoration and enhancement vegetation seeding and plantings shall be undertaken by a qualified biologist during the quarry operational and rehabilitation stages.
   - az. Monitoring shall be undertaken during the peak growing season (June to September) of the first year following restoration of the following:
     - az.a. Restored areas between the pit limit of extraction and protected wetland and woodland edges
     - az.b. Created wetland
     - az.c. Rehabilitation areas (e.g. Native Meadow, Woodlands, Side Slopes and Quarry Lake Littoral Zone)
   - ba. Monitoring of these areas shall continue during years 2, 3 and 5 following the installation of plant material.
   - bb. The monitoring shall include an inspection to assess the success of herbaceous, shrub and tree species growth, establishment and survival. The assessment will determine is the site is progressing toward the desired vegetation community type and will provide generalized percentage survival of tree and shrub stems, by species, as well as an assessment of seed mixture representation. If required, recommendations from a qualified biologist shall be implemented to create the desired rehabilitated areas. This may include supplemental seeding of seeded vegetation that is showing signs of inadequate growth or establishment, supplemental native tree/shrub plantings to counter observed die-off or decline, and/or remedial measures to improve vegetation growth conditions or rehabilitate declining growth (e.g., placement of tree guards to mitigate deer browse effects, enhanced watering during drought, cutting back competing vegetation). Invasive species growth shall be managed where feasible as per qualified biologist recommendations. Observation of wildlife usage of the restoration zones, including placed microhabitat features, shall be documented.
7. Noise
   - a. The proposed hours of extraction and processing shall be limited to the daytime hours only (7:00 am to 7:00 pm) on Monday to Saturday, with shipping operations limited to the hours of 6:00 am to 7:00 pm on Monday to Friday and 6:00 am to 5:00 pm on Saturdays.
   - b. The extraction, processing, and shipping equipment operating in the pit / quarry is limited to:
     - One Pit Processing Plant;
     - Two Quarry Processing Plants:
       - One Primary Processing Plant; and
       - One Secondary Processing Plant
     - One Wash Plant;
     - Four Shipping Loaders;
     - Three Extraction Loaders;
     - Two Rock Drills OR Quiet Rock Drills;
     - Conveyors;
     - 60 Highway truck trips/hr (120 passes/hr); and
     - 15 Off-road Trucks trips/hr (30 passes/hr)
   - c. The aggregate pit equipment shall satisfy the noise emissions levels listed in Table 1:

Table 1: Reference Sound Pressure Levels of Aggregate Quarry Equipment

Equipment	Reference Sound Pressure Level at 30m (dBA)
Pit Processing Plant	83
Primary Processing Plant	82
Secondary Processing Plant	84
Wash Plant	77
Shipping Loader	70[1]
Extraction Loader	74
Regular Rock Drill	80
Quiet Rock Drill	75
Conveyors	44[2]
Highway Truck - 25 km/hr	66
Off-road Truck - 25 km/hr	76

1 - The shipping loaders were assumed to operate at a 50% duty cycle
2 - Reference sound level for conveyors is in dBA per metre at a distance of 30 m

   - d. The sound emissions of all construction equipment involved in site preparation and rehabilitation activities shall comply with the sound level limits specified in the MECP publication NPC-115 "Construction Equipment".
   - e. New equipment technology or different configurations may allow proposed changes to any portion of the extraction and processing operations including additional equipment to operate on the site, equipment to be substituted, and/or different berm heights, while still meeting the applicable sound level limits. Changes may be permitted to the site operations and noise controls provided that the changes still meet the sound level limits, as confirmed through documentation prepared by a Professional Engineer specializing in noise control. Prior to any modification, the licensee shall provide the Ministry of Natural Resources (MNR) with written notice.
   - f. Where acoustic barriers are required, they shall be solid, with no gaps or opening, and shall satisfy a minimum area density of 20 kg/m2. It could take the form of a pit or quarry face, stockpile, acoustic fence, International Organization for Standardization (ISO) containers, a combination of these, or any construction satisfying the requirements of an acoustic barrier.
   - g. Acoustical barriers shall be implemented and maintained at the heights and lengths specified in Table 2, below, for the duration of extraction and processing within the pit and quarry.

Table 2: Perimeter Berms

Berm	Top-of-Berm Height (m)	Top-of-Berm Height (masl)	Length (m)	Location	Implementation Timing
A	6	512	1360	West, south and east of Processing and Stockpiling Area	Existing Berm
B	4	514	1150	West of Phase 2B, 1, 4 and Processing and Stockpiling Area	Existing Berm
C	5	515	320	West of Phase 2	Existing Berm
D	3	513	280	West of Phase 2C	Existing Berm
E	5	515	480	North of Phase 2C	Existing Berm
F	1-8	498	150	East of Phase 1	Prior to Phase 1A Extraction
G	5	495	200	East of Phase 1	Prior to Phase 2A Extraction

   - h. The Wash Plant shall be located at the pit floor at an elevation of 494 MASL or lower in the area designated on the Operational Plan; between 225 and 375 m of south of the south Phase 4A/4B boundary, and within 180 m of the east licence boundary.
   - i. A local barrier with a minimum height of 6 m shall be established within 30 m of the Wash Plant, between the Wash Plant and Receptor R04 when quarry extraction of the first and second bench occurs within Phase 1A, 1B, 4A, and 4B.

   Extraction of Sand and Gravel ("Pit Operations"):
   - j. The Pit Processing Plant shall operate on the top of bedrock at a maximum elevation of approximately 490 MASL and shall only operate in the northern area of the licence (Phase 2C).
   - k. During simultaneous pit and quarry operations, an acoustical barrier shall be established to continuously block the line of sight from the Pit Processing Plant in the direction of the listed receptors in Table 3.

Table 3: Pit Processing Plant Barriers during Simultaneous Pit and Quarry Operations

Receptors	Minimum Height @ Maximum Distance to Plant
R01, R28, R29	9 m @ 30 m
R20	10 m @ 30 m

   - l. Processing of pit material in Phase 2C shall be limited to a single Pit Processing Plant.
   - m. The Pit Processing Plant shall not operate simultaneously during extraction or processing of quarry material in Bench 1 or 2 of Phase 1A.

   Extraction of Consolidated Material ("Quarry Operations"):

   Phases 1 and 2:
   - n. During extraction in Phase 1A and 1B, when the Processing Plants are operating at top of rock, processing shall not occur within 175 m of the east quarry boundary.
   - o. During extraction of Bench 1 in Phase 1B through 2C, the Secondary Processing Plant shall be located on the Bench 1 floor at an elevation of approximately 472 masl or lower as soon as practicable.
   - p. During processing operations in the first two benches of the quarry, acoustic barriers shall be established to block line of sight from the Primary Processing Plant in the direction of the following receptors based on the location of the plant as outlined in Table 4.

Table 4: Primary Processing Plant Barriers - Phase 1 Through 2

Plant Location (Phase)	Plant Elevation	Receptors to be Shielded	Minimum Height @ Maximum Distance to Plant
1A	Top of rock	R01	10 m @ 40 m; OR 7.8 m @ 10 m
		R20	12 m @ 40 m; OR 7.8 m @ 10 m
	Bench 1 & 2	R01	10 m @ 60 m
		R20	9 m @ 30 m; OR 5.2 m @ 10 m
1B	Bench 1 & 2	R01	10 m @ 60 m; OR 5.2 m @ 10 m
		R20	9 m @ 30 m; OR 5.2 m @ 10 m
2A	Bench 1 & 2	R20	10 m @ 60 m; OR 5.2 m @ 10 m
2B	Bench 1 & 2	R01	10 m @ 60 m; OR 5.2 m @ 10 m
		R20	9 m @ 30 m; OR 5.2 m @ 10 m
2C	Bench 1	R28, R29	10 m @ 60 m; OR 5.2 m @ 10 m

   - q. During processing operations in the first two benches of the quarry, acoustic barriers shall be established to block line of sight from the Secondary Processing Plant in the direction of the following receptors based on the location of the plant, as outlined in Table 5.

Table 5: Secondary Processing Plant Barriers - Phase 1 Through 2

Plant Location (Phase)	Plant Elevation	Receptors to be Shielded	Minimum Height @ Maximum Distance to Plant
Top of rock (Phase 1A / 1B Extraction)		R01	10 m @ 40 m; OR 7.8 m @ 10 m
		R20	12 m @ 40 m; OR 7.8 m @ 10 m
1B	Bench 1 & 2	R01	9 m @ 30 m; OR 5.2 m @ 10 m
		R20	9 m @ 30 m; OR 5.2 m @ 10 m
2A	Bench 1	R20	10 m @ 60 m; OR 5.2 m @ 10 m
2B	Bench 1 & 2	R01	10 m @ 60 m; OR 9 m @ 30 m; OR 5.2 m @ 10 m
		R20	9 m @ 30 m; OR 5.2 m @ 10 m
		R28, R29	7 m @ 30 m; OR 5.2 m @ 10 m
2C	Bench 1 & 2	R01	7 m @ 30 m; OR 5.2 m @ 10 m
		R28, R29	7 m @ 30 m; OR 5.2 m @ 10 m

   - r. Drilling operations in Phases 1 and 2 shall be limited to any one those outlined in Table 6 for a specified phase. Receptors listed for the specified arrangement shall be shielded through the provision of the specified noise barrier as required in Table 6.

Table 6: Permitted Drill Setups and Required Barriers - Phase 1 Through 2

Drill Location (Phase)	Permitted Drill Setups	Receptors to be Shielded	Minimum Height @ Maximum Distance to Plant
1A	1 Regular	R20	4 m @ 7 m
	2 Quiet	R20	4 m @ 7 m
	1 Quiet	No Barrier Required	
1B	1 Regular; OR 2 Quiet	R01	4 m @ 7 m
	1 Quiet	No Barrier Required	
2A	1 Regular; OR 2 Quiet	No Barrier Required	
2B	1 Regular; OR 2 Quiet	R01	4 m @ 7 m
		R29, R28	4 m @ 7m
	1 Quiet	No Barrier Required	
2C	2 Regular	R28, R29	4 m @ 7 m
	1 Regular; OR 2 Quiet	No Barrier Required	

   Phase 3:
   - s. During quarry extraction in Phase 3A, the Primary and Secondary Processing Plants shall operate at the Bench 2 floor elevation of 456.5 masl or lower, and the Primary Processing Plant shall be located at an elevation of approximately 446 masl or lower as soon as practicable.
   - t. When the Secondary Processing Plant operates in Phase 3A and is more than 350 m from the north licence boundary, an acoustic barrier shall be established between the Secondary Processing Plant and Receptor R01 having a minimum height of 7 m at a maximum distance of 30 m from the plant; OR a minimum height of 5.2 m at a maximum distance of 10 m from the plant.
   - u. When the Primary Processing Plant operates in Phase 3A and is more than 350 m but less than 700 m from the north licence boundary, an acoustic barrier shall be established between the Secondary Processing Plant and Receptors R28 and R29. The barrier shall have a minimum height of 9 m at a maximum distance of 30 m from the plant; OR a minimum height of 5.2 m at a maximum distance of 10 m from the plant.
   - v. During extraction in Phase 3B, the Secondary Processing Plant shall operate at the Bench 2 floor elevation of 456.5 masl or lower.
   - w. When 2 regular drills are operating simultaneously during extraction of Bench 1 in Phase 3B, an acoustic barrier shall be established between the drills and Receptor R01 with a minimum height of 4 m and a maximum distance of 7 m from the drills.

   Phase 4:
   - x. During extraction of Phase 4A and 4B, the Secondary Processing Plant shall operate at the quarry floor with an elevation of approximately 440 masl and shall be located within 275 m of the western extraction limit as illustrated on the Operation Plan.
   - y. Drilling operations during extraction of Bench 1 of Phase 4A shall be limited to a single Regular Drill, or two Quiet Drills.
   - z. During Extraction of Bench 1 of Phase 4B, when 2 regular drills are operating simultaneously an acoustic barrier shall be established between the drills and Receptor R01 with a minimum height of 4 m and a maximum distance of 7 m from the drills.

   Vacant Lot VL37 Noise Controls
   - aa. If a dwelling at VL37 is constructed and occupied during extraction or processing operations in the pit or quarry, the following noise controls shall apply:
     - aa.a. During pit extraction, an acoustical barrier shall be established between the Pit Processing Plant and VL37 if quarry operations are occurring simultaneously as noted in Table 7.

Table 7: Pit Processing Barriers for VL37

Quarry Operations During Pit Operations	Minimum Height @ Maximum Distance to Pit Processing Plant
Quarry Not Operating	6 m @ 20 m
Quarry Operating	9 m @ 30 m

     - aa.b. During quarry processing at top of rock in Phase 1A, an acoustic barrier shall be established between the Primary and Secondary Processing Plants and VL37 with a minimum height of 6 m and at a maximum distance of 30 m from the Quarry Processing Plants.
     - aa.c. During quarry extraction of Phase 2A and 2B with a Regular Drill or 2 Quiet Drills, an acoustic barrier shall be established between the drill(s) and VL37 with a minimum height of 4 m and a maximum distance of 7 m from the drill(s).
     - aa.d. During quarry processing in Phase 2C, an acoustic barrier shall be established between the Secondary Processing Plant and VL37 with a minimum height of 15 m at a maximum distance of 100 m; OR a minimum height of 9 m at a maximum distance of 30 m; OR with a minimum height of 5.2 m at a maximum distance of 10 m.
8. Traffic
   - a. There are no site plan recommendations.
9. Water Resources
   - a. Water levels shall be collected continuously with automatic water level transducers, with manual measurements collected monthly at the following groundwater monitors: PW1, OW1, OW3B, OW3C, OW4A, OW4B, OW4C, OW5A, OW5B, OW5C, OW6A, OW7A, OW7C, OW8A, OW9B, OW10B, OW12A, OW12B, OW13A, OW13C, OW14A, OW14C, OW16A, OW16C, OW18A, OW18C, OW19A, OW19C, OW20A, OW20C, OW21A, OW21C, OW22A, OW22C, OW23A, OW23C, OW24A, OW24C, OW25A, OW25C, OW26A, OW26C, OW27C, OW28A, OW28C, OW29A, OW29C, OW30C and the four Injection Wells, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - b. Water levels shall be collected continuously with automatic water level transducers April through November, with monthly manual measurements collected during the same period at the following surface water monitors: North Pond, South Pond, SW1 and SW2, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - c. Water levels shall be collected continuously with automatic water level transducers April through November, with monthly manual measurements collected during the same period subject to landowner permission/access being granted at the following surface water monitors: NAT-18 and NAT-19, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - d. Water levels shall be collected continuously with automatic water level transducers, with manual measurements to be collected monthly subject to landowner permission/access being granted at the following private water wells: DW1, DW2, DW3, DW4, and DW5 as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - e. Water levels and streamflow shall be collected continuously with automatic water level transducers April through November, with monthly manual measurements collected during the same period at the following surface water monitors: SW4, SW5, SW6, SW13, SW14, and SW18, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - f. Semi-annual water quality sampling for pH, Conductivity, Alkalinity, Bicarbonate, Chloride, Metals (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Cobalt, Copper, Lead, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Sodium, Silver, Strontium, Sulfur, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc), Nitrate/Nitrite, and Sulphate shall be conducted at the following groundwater monitors: OW3B, OW3C, OW4A, OW4B, OW4C, OW5A, OW5B, OW5C, OW6A, OW7A, OW7C, OW8A, OW9B, OW10B, OW12A, OW12B, OW13A, OW13C, OW14A, OW14C, OW16C, OW18A, OW18C, OW19A, OW19C, OW20C, OW21A, OW21C, OW22A, OW22C, OW23A, OW23C, OW24A, OW24C, OW26A, OW26C, OW27C, OW28A, OW28C, OW29A, OW29C, OW30C and the four Injection Wells, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - g. Semi-annual water quality sampling for pH, Conductivity, Alkalinity, Bicarbonate, Chloride, Metals (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Cobalt, Copper, Lead, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Sodium, Silver, Strontium, Sulfur, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc), Nitrate/Nitrite, and Sulphate shall be conducted subject to landowner permission/access being granted at the following private water wells: DW1, DW2, DW3, DW4 and DW5, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - h. Annual water quality sampling for Petroleum Hydrocarbons Fractions F1 to F4, Benzene, Toluene, Ethylbenzene and Xylenes, and Oil and Grease shall be conducted at the following groundwater monitors: OW5A, OW6A, OW7A, OW8A, OW9B, OW10B, OW12A, OW14C, OW16C, OW18A, OW20C, and OW21C, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - i. Semi annual water quality sampling for Dissolved Oxygen, Conductivity, pH, and Temperature shall be conducted at the following surface water monitors: North Pond, South Pond, SW1, SW2, SW4, SW5, SW6, SW13, SW14, and SW18, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - j. Semi annual water quality sampling for Dissolved Oxygen, Conductivity, pH, and Temperature shall be conducted subject to landowner permission/access being granted at the following surface water monitors: NAT-18 and NAT-19, as shown on the Monitoring Locations schematic (Drawing 1 of 5).
   - k. If a water well complaint is received by the licensee, the following actions shall be taken by the licensee:
     - k.a. Notify the MNR and MECP.
     - k.b. Ensure a Certified Well Inspector (i.e. licensed water well technician) and/or qualified hydrogeologist visits the site within 24 hours of receiving the complaint to investigate. The Certified Well Inspector and/or hydrogeologist shall complete a well inspection including a review of the pump, well condition, pump depth and condition, etc.
     - k.c. Temporary water supply shall be provided by the licensee to the well owner within 48 hours of receiving the complaint and thereafter until such time as the cause of the disruption has been determined.
     - k.d. If the well complaint cannot be definitively determined to not be a result of the pit/quarry operations after the initial site visit, a hydrogeologist shall review the water well inspection report and supporting information, water level data and on-going operations at the quarry/pit to provide an assessment of the cause of the complaint. The hydrogeologist shall prepare an opinion letter to be provided to the MNR, MECP, and the complainant as to the likelihood that the well complaint is related to the quarry/pit operation.
     - k.e. If the well complaint is considered to be a result of the pit/quarry operations the following water supply restoration program shall be initiated at the expense of the licensee to the satisfaction of MECP:
       - k.e.a. Step 1: Well system rehabilitation: this includes the replacement or lowering of pumps, flushing the pump lines, well deepening, etc.
       - k.e.b. Step 2: Well Replacements: if system rehabilitation is not an option, the well shall be replaced with a new well further from the pit/quarry.
       - k.e.c. Step 3: Water treatment considerations: appropriate water treatment shall be incorporated into any restored water supply.
   - l. The 2:1 backfilled side slopes on quarry benches 1 and 3, as shown on the Rehabilitation Plan (Drawing 4 of 5), shall be constructed as a composite berm structure that shall include a sufficiently impermeable (i.e. clay-like) 'core' with a well compacted cohesionless granular shell or outer material comprising of the majority of the side slope backfill. As extraction of the quarry progresses, the 2:1 backfilled side slopes shall be constructed, as soon as possible, to follow behind the working face along the quarry limit of extraction to provide a water management barrier during operations.
   - m. Four injection wells shall be constructed along the east property limit behind the water control barrier prior to construction of the acoustic berm in the location shown on the Operational Plan (Drawing 2 of 5). Two injection wells shall be drilled into the Guelph formation and two injections wells shall be drilled into the Gasport formation. The Guelph formation and Gasport formation injection wells shall have a minimum total capacity of 5 and 7 L/s, respectively.
   - n. The buried tile drain shall be constructed prior to extraction commencing in Phase 2 in the location shown on the Operational Plan (Drawing 2 of 5). The buried tile drain shall be constructed of perforated tile drain wrapped in filter sock behind the water control barriers along the western face of extraction at an elevation of 488 m asl. The buried tile drain shall be constructed in three segments totalling 1,105 m (minimum) with the north and central segments draining to the injection wells and the south segment draining to the central infiltration pond or injection wells. Water from the buried tile drain shall be conveyed to the injection wells and central infiltration pond through a passive drainage system and/or pumped.
   - o. Inspection ports and control valves shall be incorporated into the buried tile drain and injection well systems so groundwater levels can be monitored, the systems can be inspected and maintained, and for operational flexibility so the water management system can be optimized during operations. The south segment of the buried drain shall be designed to drain to both the central infiltration pond and injection wells to allow additional non-contact water to drain to the injection wells should it be advantageous to do so from an operations and mitigation perspective.
   - p. The infiltration trenches shall be constructed at a 2:1 slope (max). The location of the north infiltration trenches is shown on the Operation Plan (Drawing 2 of 5).
   - q. The infiltration ponds shall be constructed at 2:1 slopes (max) where the pond walls will be formed by excavating the existing sand and gravel (e.g. permeable materials) and where the impermeable liner will be incorporated, except for the north and west banks of the central infiltration pond which shall be constructed with 3:1 slopes (max) with an impermeable liner. The locations of the central and south infiltration ponds are shown on the Operation Plan (Drawing 2 of 5).
   - r. The infiltration trench and infiltration pond side slopes shall be protected from erosion with suitable erosion protection measures (e.g. topsoil, hydroseed and erosion control blanket, rip rap, etc.) approved by a geotechnical engineer at the time of trench and pond construction.
   - s. The geotechnical suitability of the on-site till soils shall be confirmed by a geotechnical engineer prior to the construction of the 2:1 side sloping on quarry bench 1 and 3 and for the impermeable liner for the infiltration ponds. The north and west banks of the central and south infiltration ponds shall be constructed with an impermeable liner. If there is not sufficient on-site till soils suitable for this construction, suitable off-site soil shall be imported.
   - t. In Phase Two, 2.0 m of the Ancaster/Niagara Formation is to remain above the Gasport Formation as shown on the maximum depth of extraction on the operational plan. The effects of groundwater uplift are to be confirmed in Phase Two when final depths of extraction are reached by a Professional Engineer. If groundwater uplift is anticipated, the thickness of the Ancaster/Niagara Formation in the remaining phases shall be increased based on the assessment or pressure relief sumps may need to be constructed within the extraction area. The assessment of groundwater uplift shall be provided to MNR and if required a site plan amendment will be submitted to MNR to implement the recommendations of the assessment.
   - u. In Phase Four, uplift potential within the Cabot Head Formation is not anticipated. However, if fractures or bulging due to groundwater uplift are observed depressurization sumps or drainage galleries should be constructed within the extraction area.
   - v. Water from the quarry sump or clean water pond shall be discharged to the north infiltration trenches, central infiltration pond, south infiltration pond and created wetland as necessary to maintain dry operating conditions in the Quarry and the hydrologic function of the created wetland during extraction. No process water will be discharged from the Quarry directly prior to being treated. There shall be no direct discharge of water off-site. There shall be no discharge of contact water into the injection wells.
   - w. During Phase 4 of extraction, a limited portion of the west face of bench 3 as shown on the Rehabilitation Plan (Drawing 4 of 5) shall be left open (no water control barrier) to allow long-term drainage of the quarry lake into the Gasport aquifer. This portion of the quarry face shall be left open as part of the final rehabilitated landform.
   - x. As part of the final rehabilitation of the site, a 365 m portion of the overburden water control barrier along the east face as shown on the Rehabilitation Plan (Drawing 4 of 5) shall be removed to allow lateral seepage into the shallow overburden system east of the property.
   - y. As part of final rehabilitation of the site, the north segment of the buried tile drain shall be extended through the west face water control barrier to discharge into the quarry lake.
   - z. As part of final rehabilitation of the site, the buried tile drain, except for the north segment, shall be decommissioned.
   - aa. As part of final rehabilitation of the site, the injection wells shall be decommissioned in accordance with O.Reg.903.
   - ab. As part of final rehabilitation of the site, the infiltration features (north and south infiltration trenches and central and south infiltration ponds) shall be decommissioned.
   - ac. The licensee shall operate in accordance with the ECA and PTTW requirements.
   - ad. The operation and rehabilitation of this site will not impact a Wellhead Protection Area or a Surface Water Intake Protection Zone and therefore, source water protection policies do not apply for this licence.

Legal Description

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West Half of Lots 12, 13 and 14, Concession 3
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Township of Melancthon, County of Dufferin

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No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By

MHBC
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MNR Approval Stamp

MHBC Stamp

Christopher Poole

Is authorized by the Ministry of Natural Resources pursuant to Subsection 0.2(3)(f) of Ontario Regulation 244/97 to prepare and certify site plans.

N
W E
S

Applicant

STRADA AGGREGATES

Strada Aggregates Inc.
30 Floral Parkway
Concord, Ontario
L4K 4R1

Project Strada Pit & Quarry
437159 4th Line, Melancthon, Ontario, L0N 1S9

MNR Licence Reference No.

Applicant's Signature

Plan Scale: Not Applicable

Date January 2025

Drawn By C.P.

Checked By B.Z.

File No. Y349I

Drawing Name Operational Notes

Drawing No. 3 of 5

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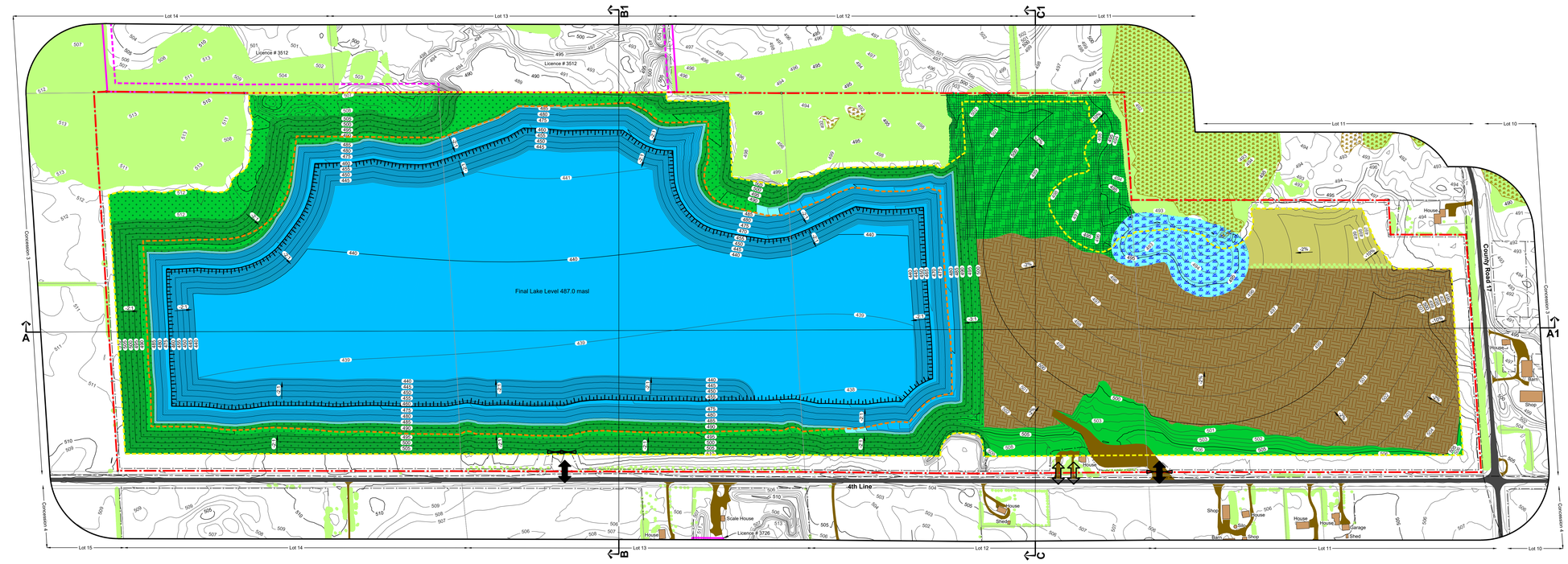
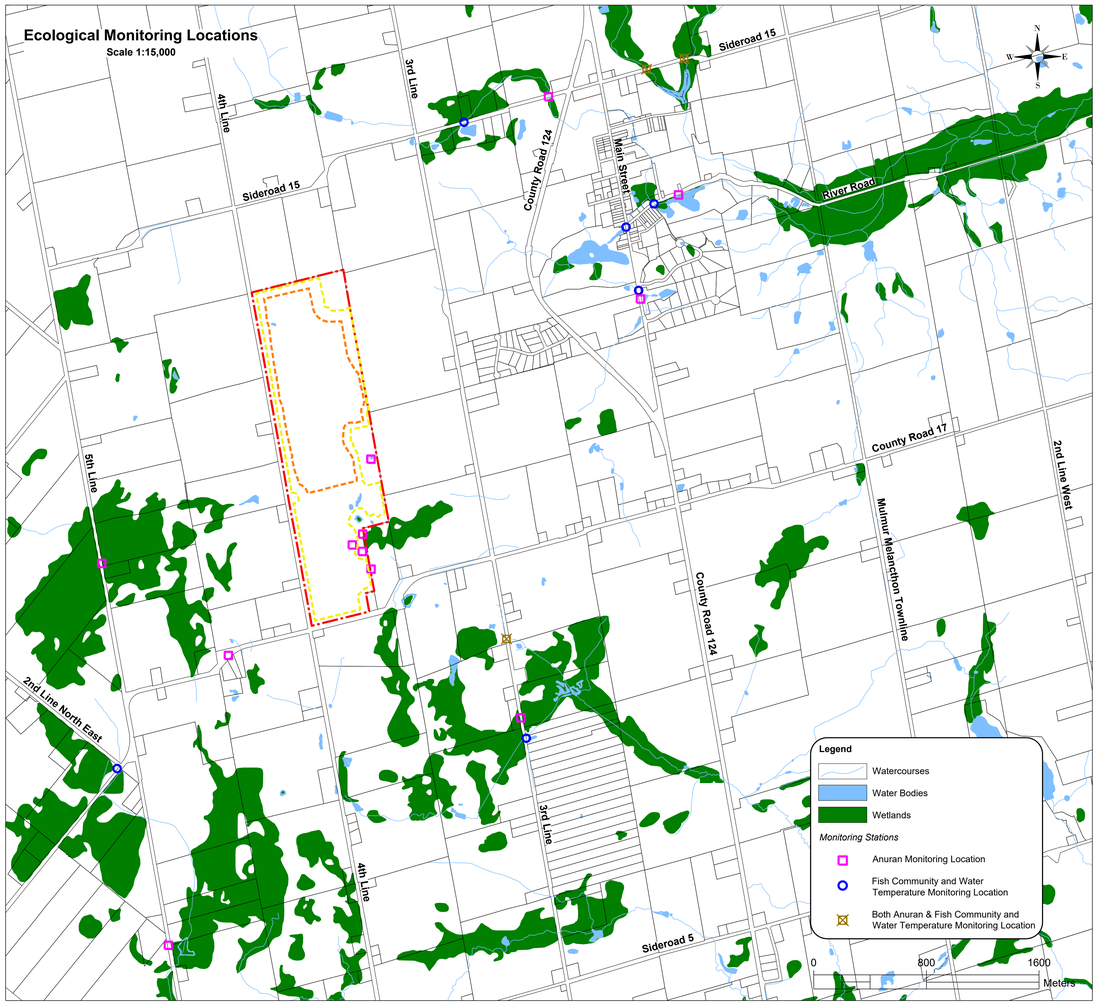




PROGRESSIVE REHABILITATION

A. General

1. Area calculations
   - 1.1. Licence Boundary 149.0 ha
   - 1.2. Pit Limit of Extraction 123.7 ha
   - 1.3. Quarry Limit of Extraction 65.7 ha
2. The maximum annual tonnage is 2,000,000 tonnes.
3. The maximum predicted water table within the limits of extraction varies between 483.0 to 500.0 masl and is shown in each cross section on drawing 5 of 5.

B. Phasing

1. As excavation reaches the limit of extraction or maximum depth, progressive rehabilitation shall commence.
2. Progressive rehabilitation shall follow the general direction and sequence of extraction identified on drawing 2 of 5 and described in the notes on drawing 3 of 5.
3. Each phase of extraction shall commence progressive rehabilitation prior to proceeding to the next phase of extraction.

C. Slopes and Grading

1. Progressive rehabilitation for the pit shall consist of backfilling the pit floor and side slopes to establish the grades, slopes and elevations depicted on the plan view of this drawing. Side slopes may also be established for the pit using the cut and fill rehabilitation technique.
2. Progressive rehabilitation for the quarry shall consist of backfilling the excavation face from lift 1 to the top of bedrock to establish a 2:1 side slope. The excavation face for lift 2 shall remain vertical (see Section N Variations from Control and Operation Standards on drawing 3 of 5). The excavation face for lift 3 shall be backfilled from the floor of lift 3 to the bottom of lift 2 to establish a 2:1 side slope. However, the excavation face for lift 3 along the west boundary of Phase 4B shall remain vertical (see Section N Variations from Control and Operation Standards on drawing 3 of 5).
3. Access ramps shall remain as part of the final rehabilitation land form. Ramps shall not be steeper than a 10:1 (horizontal : vertical) slope.
4. Excess soil, as defined in Ontario Regulation 244/97 may be imported to this site to facilitate the following rehabilitation:
   - 4.1. Establishing final grades, slopes and elevations depicted on the plan view of this drawing.
   - 4.2. Top dressing to establish vegetation.
5. Liquid soil, as defined in Ontario Regulation 406/19 under the Environmental Protection Act, is not authorized for importation to the site.
6. The quality of excess soil imported to the site for final placement must be equivalent to or more stringent than the applicable excess soil quality standards as determined in accordance with Ontario Regulation 244/97 as amended from time to time and must be consistent with the site conditions and the end use identified in the approved rehabilitation plan.
7. Where a qualified person is retained or required to be retained in accordance with Ontario Regulation 244/97, the quality, storage, and final placement of excess soils shall be done according to the advice of the qualified person.
8. Excess soil imported to facilitate rehabilitation as described on this site plan shall be undertaken in accordance with Ontario Regulation 244/97 under the Aggregate Resources Act, as amended from time to time.
9. The cumulative total amount of excess soil that may be imported to this site for rehabilitation purposes is 7,100,000 m³.

D. Drainage

1. The final surface drainage will follow the rehabilitation contours and directional arrows shown on the plan view of this drawing.

E. Agricultural Rehabilitation

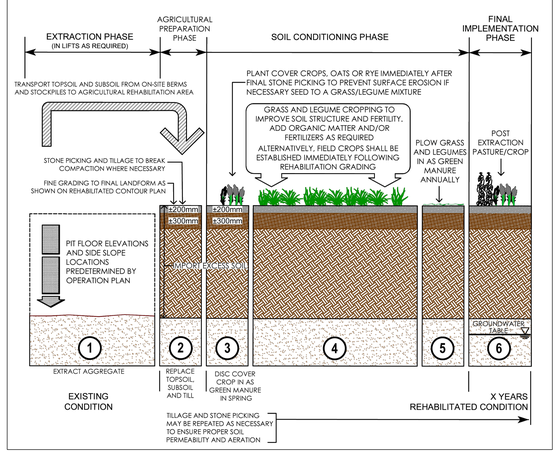
1. Within the limit of extraction, 24.2 hectares shall be returned to an agricultural condition in accordance with the Pit Floor Agricultural Rehabilitation Sequence schematic on this drawing.
2. The Agricultural technical recommendations in note O.1 on drawing 3 of 5 shall be implemented during progressive and final rehabilitation to restore 24.2 hectares of the extraction area to an agricultural condition.

FINAL REHABILITATION

E. General

1. All equipment shall be removed from the site.
2. The scale house / office and scale on Lot 13, Concession 3 shall be removed.
3. The scale house / office and scale on Lot 12, Concession 3 may remain.
4. The farmhouse on Lot 12, Concession 3 may remain.
5. Aside from the buildings and structures mentioned in notes E.2 to E.4 above, all other buildings, structures and haul roads shall be removed.
6. The anticipated final lake level is 487.0 masl.
7. The anticipated final end-use will be agriculture with naturalized open space consisting of a native meadow, side slopes, a woodland, littoral zones, a wetland and a lake.

Pit Floor Agricultural Rehabilitation Sequence



Legal Description

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West Half of Lots 12, 13 and 14, Concession 3
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Township of Melancthon, County of Dufferin

Legend

- Licence Boundary
- Pit Limit of Extraction
- Quarry Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Driveway
- Wooded Area
- Rehabilitated Agricultural Area
- Rehabilitated Native Meadow Area
- Existing Rehabilitated Area
- Rehabilitated Side Slopes
- Rehabilitated Woodland Area
- Quarry Lake Littoral Zone
- Rehabilitated Wetland
- Rehabilitated Lake
- Existing Licence Boundary
- Existing Limit of Extraction
- 120m Offset From Licence Boundary
- Parcel Fabric
- Overhead Hydro
- Fence (1.2m post & wire fence unless otherwise noted)
- Entrance / Exit (Operational - Solid; Farmhouse - Hollow)
- Gate
- Building/Structure
- Proposed Final Slope (Horizontal : Vertical)
- Proposed Final Grade
- Wetland
- Unevaluated Wetland
- Cross Sections

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MNR Approval Stamp

MHBC Stamp

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Applicant

STRADA AGGREGATES

Strada Aggregates Inc.
30 Floral Parkway
Concord, Ontario
L4K 4R1

Project

Strada Pit & Quarry

437159 4th Line, Melancthon, Ontario, L0N 1S9

MNR Licence Reference No.

Applicant's Signature

Plan Scale: 1:3000 (Arch E)
0 90 180 Meters

Date January 2025
Drawn By C.P.
Checked By B.Z.
File No. Y349I

Drawing Name

Rehabilitation Plan

Drawing No.

4 of 5

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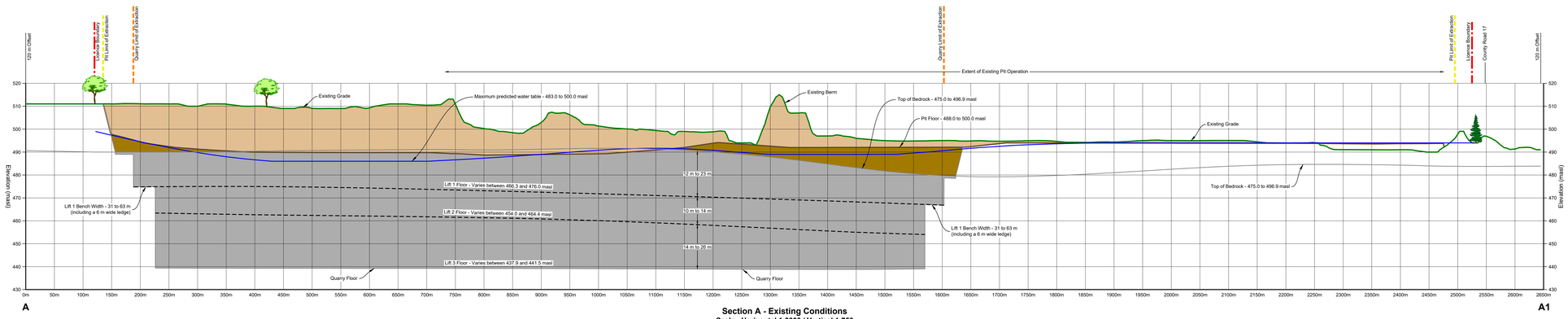

A A1

Section A - Existing Conditions
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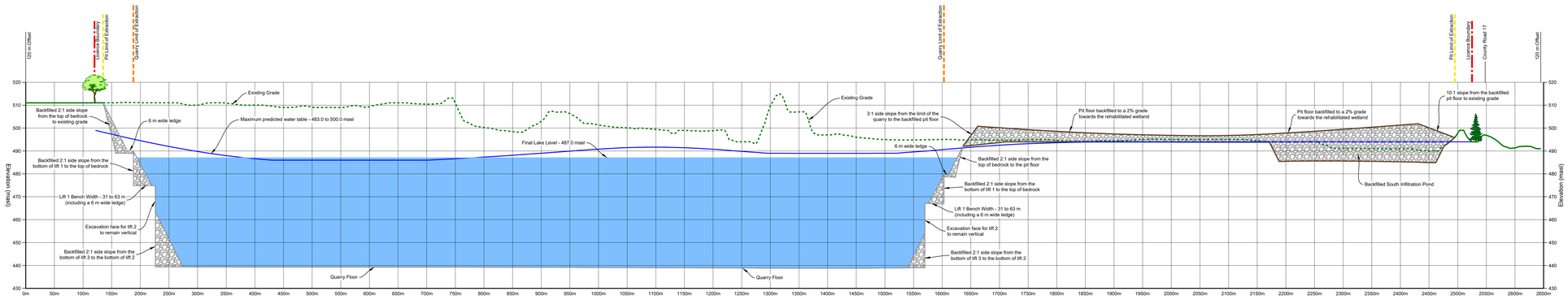

A A1

Section A - Rehabilitated Landform
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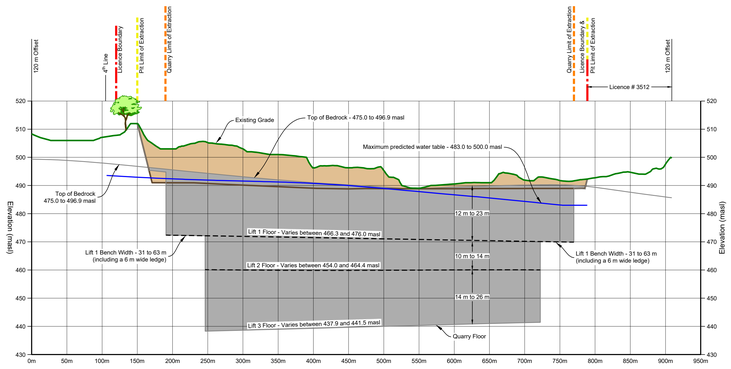

B B1

Section B - Existing Conditions
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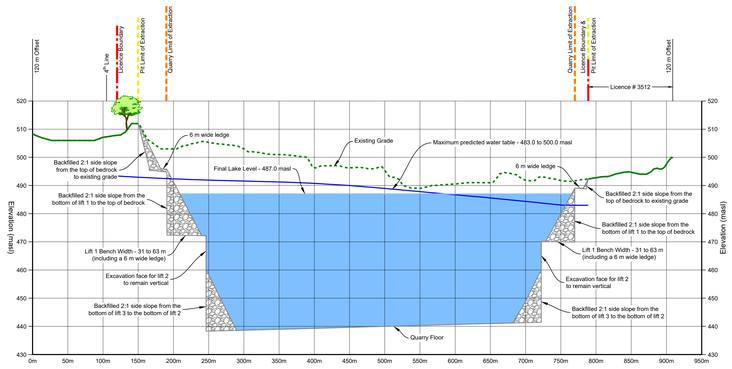

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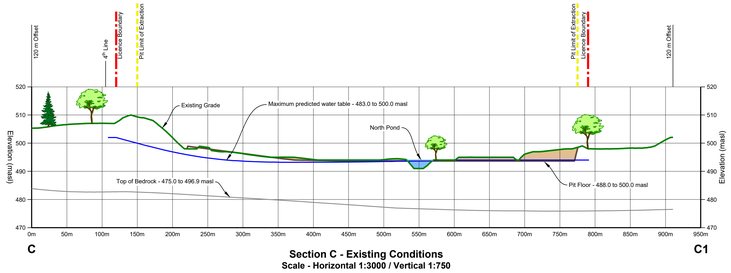

C C1

Section C - Existing Conditions
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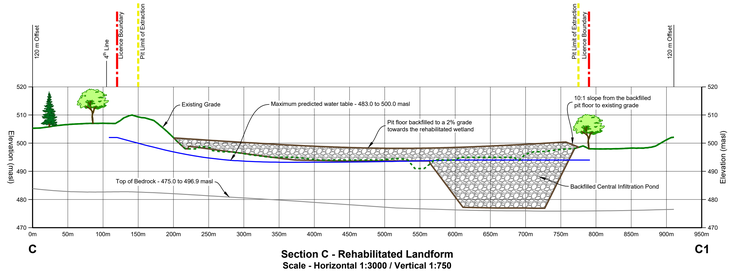

C C1

Section C - Rehabilitated Landform
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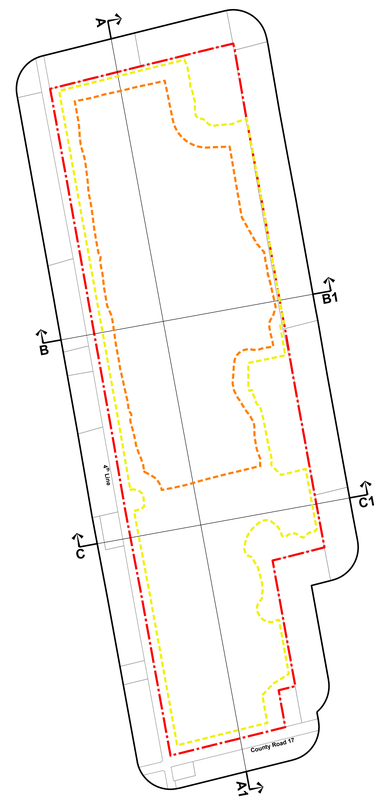

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Legend

- Licence Boundary
- Pit Limit of Extraction
- Quarry Limit of Extraction
- Existing Grade - Removed / Altered
- Existing Grade - Undisturbed
- Maximum Predicted Water Table
- Pit Floor
- Quarry Floor / Top of Bedrock
- Backfilled
- Lake or Pond
- Overburden / Till
- Aggregate Available for Extraction - Pit
- Aggregate Available for Extraction - Quarry

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Drawing Name

Cross Sections

Drawing No.

5 of 5

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