

Numbering scheme used for operational notes refers to Aggregate Resources of Ontario Site Plan Standards.

33. All entrances and exits are shown on the plan view of this drawing. Highway trucks and quarry vehicles will access Phases 1 and 2 anywhere along the common limit of extraction with Licence #608621. Highway trucks and quarry vehicles (excluding off road haul trucks) may also use the entrance/exit in the southwest corner of Phase 1 to access the site from Licence #5481 for rehabilitation purposes.

A gate shall be installed at the entrance/exit in the southwest corner of Phase 1, kept closed during hours of non-operation and maintained. A gate shall not be required where haul roads cross the common boundary with Licence #608621 (see Operational Note 54 - Variations from Control and Operation Standards on this drawing).

34. The area to be extracted is 15.9 ha.

35. Not applicable since it only applies to aggregate permits.

36. Prior to any site clearing, the licence boundary shall be fenced with 1.2 m post and wire fencing in the locations shown on the plan view. Fencing shall not be required along the common boundary with Licence #608621 to eliminate constraints associated with the extraction operation, along the north boundary of the licence since the property boundary is already fenced and in the southwest corner since there is an existing fence to the east (see Operational Note 54 - Variations from Control and Operation Standards on this drawing).

Wherever the licence boundary is not fenced, the licence boundary shall be delineated with marker posts a maximum of 30 metres apart. The marker posts shall be visible from one marker post to the next. The entire site will be fenced through a combination of existing and proposed fencing to restrict access to the extraction area and the area consisting of the main watermain. All fencing shall be maintained.

37. Throughout the life of the operation there shall:

37.1. Be no buildings or structures except those associated with the water management system;

37.2. Be no scrap areas;

37.3. Be internal haul roads located anywhere on the quarry floor;

37.4. Be service access roads to access the watermains, feeder lines and associated facilities for the recharge mitigation system, and for drills and blasting trucks; and

37.5. Be stockpiles of aggregate, topsoil and overburden located anywhere within the limit of extraction (see Operational Note 54 - Variations from Control and Operation Standards on this drawing).

38. No processing shall occur on-site. Excavated material shall be hauled to Licence #5481 for processing (extraction Scenario 1, see Noise Note F.6) or to portable processing plants in the East Cell of Licence #608621 and Main Quarry of Licence #5481 for processing (extraction Scenario 2, see Noise Note F.7).

39. Aggregate recycling shall not occur within this licence.

40. The site shall be extracted in two phases. Phase 1 shall be extracted in a southerly direction and Phase 2 shall be extracted in an easterly direction (as depicted on the plan view).

41. Prior to the stripping of topsoil and overburden, Natural Environment Notes E.2 and E.4 shall be implemented and notes E.6 to E.9 shall be adhered to. Topsoil and overburden shall be stripped stored separately wherever there are distinguishable layers and sufficient thickness to allow separate handling.

Topsoil and overburden materials may be moved between this site and Licence #5481 and #608261 (see Operational Note 54 - Variations from Control and Operation Standards on this drawing). Soil materials on site shall be classified and

Organics and topsoils (for final dressing to promote regeneration);

Non-structural fill; and

Structural material

exceed Ministry of Labour requirements.

Land Owned by

Regional Municipality

of Halton and Leased

by Licensee

Temporary topsoil and overburden stockpiles which remain for more than six months shall be graded and seeded to control erosion. Seeding shall not be required if these stockpiles have vegetated naturally in the six months.

42. The maximum number of lifts is three, while the majority of the operation will occur in two lifts. Operations may go to one or three lifts as required based on depth of resource or mitigation requirements. The depth of the first lift will vary from the surface to adapt to topography and thickness of the resource but shall have a minimum elevation of 325 masl. The third lift includes a shallow extraction lift (reynales formation) across the quarry floor. The maximum height of each lift shall not

43. Surface run-off from site preparation areas shall be controlled to contain erosion and sedimentation outside of the extraction area by installing the silt/exclusion fencing in the locations shown on the plan view. The extraction operations shall be conducted in a dry (dewatered) state and hence dewatering of the extraction areas shall be required. Dewatering and discharge shall be in accordance with a Permit to Take Water (PTTW) under the Ontario Water Resources Act (OWRA) and an Environmental Compliance Approval (ECA) under the Environmental Protection Act. The active quarry area shall be dewatered using a sump constructed in the quarry floor, through the reynales and into the top of the cabot head shale. Water shall be pumped from the sumps and conveyed through a surface and/or buried pipe discharge system. Ground and surface water is collected and diverted to adjacent Licence #608621 and Licence #5481 for storage and integration into the ground water recharge and mitigation system.

315.1 - Water Table

minimum elevation)

338.9 - Existing 327.6 - Water Table 302.6 - Max Depth

Phase '

The priority for water use will be for:

• The protection of the environment first (i.e. downstream flow to the Hilton Falls Tributary as per agreement with Conservation Halton and operation of the mitigation system to maintain target water levels & support natural features and functions):

Operation of the quarry second; and

Filling of the lakes third.

Any surplus water not required for these purposes and for which no storage is available shall be discharged to Hilton Falls Reservoir Tributary.

44. The site is not within a wellhead protection area and source water protection policies do not apply. 45. Prior to site preparation, a Spills Contingency Plan shall be developed and implemented. Fuel trucks shall be utilized for refueling mobile quarry equipment in accordance with the Liquid Fuels Handling Code. All spills on site shall be handled in accordance with the Spills Contingency Plan. No fuel shall be stored on-site.

46. See plan view on this drawing for the location and labelling of all extraction limits from the licence boundary. See plan view on this drawing for maximum depth of extraction elevations through the use of spot elevations. The site plan

allows for the full removal of the amabel/reynales limestone units and the proposed spot elevations may vary by 2-3 metres with the depth of the resources encountered. 48. No acoustic or visual berms are required. Therefore, the location and minimum height of berms have not been provided.

49. No acoustic or visual berms are required. Therefore, details regarding how berms will be vegetation and maintained are not

50. Prior to extraction below the water table, installation of the hydrogeologic monitoring and mitigation systems shall occur. Extraction of the bedrock will involve drilling blast holes, blasting and loading blasted aggregate into Off-Road trucks where it will be transferred to Licence #608621 and Licence #5481 for processing and shipping to market. See Operational Note 38 for additional information.

On-site equipment (and reference to noise emission levels in dba @ 30m) will include: Site preparation and Rehabilitation

 Backhoes Haul trucks

 Bulldozers Scrapers Graders Compactors

 Maintenance trucks Highway trucks Pickup trucks

Drilling, extraction and transport

Water and fuel trucks

Tree clearing equipment

 3 rock drills 2 extraction loaders

 1 excavator 24 Off-Road truck trips per hour (48 passes per hour) Water trucks

 Fuel trucks Maintenance trucks

 Explosive trucks & service vehicles as required Pickup trucks

51. No visual tree screens are required. 52. Hours of operation:

E.9 for additional information).

Salamander Excluder

340.8 - Existing 332.8 - Water Table 302.8 - Max Depth

(maximum elevation)

337.4 - Existing 333.7 - Water Table 303.0 - Max Depth

Additional Land Owned by Licensee

Area subject to separate

— Site Plan Amendment to reduce 15m setback to 0m

(Licence #608621)

340.7 - Existing 330.1 - Water Table 302.6 - Max Depth

339.2 - Existing 330.9 - Water Table 303.0 - Max Depth

 Extraction & processing Monday to Sunday, 24 hours per day Monday to Sunday, 24 hours per day Loading and shipping Monday to Sunday, 24 hours per day Maintenance

 Site preparation & rehabilitation Monday to Sunday between 7:00 a.m. and 7:00 p.m. Monday to Sunday between 7:00 a.m. and 7:00 p.m.

Operations shall not occur on statutory holidays but maintenance may occur.

53. Timber resources shall be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Stumps, trees, shrubs and brush cleared shall be used for rehabilitation of this site and Licence # 608621 and Licence #5481 to provide coarse and fine wood debris to enhance soils and create habitats during site rehabilitation (see Natural Environment Note

⊤own of Halton Hills

54. Variations from Control and Operation Standards

Section 0.13 Variation Standard Gates shall not be required where haul road(s)

This will eliminate constraints to the movement of cross the common boundary with Licence equipment between licences owned by the same Excavation shall occur in the setback area to Water mitigation system is required to be built install the water mitigation system. below the frost line. This will enable material to be extracted along the A 0 metre setback shall be provided where the common boundary and for rehabilitation to licence abuts existing Licence #608621. ansition between licences. A site plan amendment for existing Licence #608621 is required. This will be consistent with Licence #608621 to the A 20 metre setback shall be provided along the north which has a 20 metre setback along the western boundary adjacent to the road western boundary adjacent to the road allowance allowance which is closed to public access. which is closed to public access. Aggregate, topsoil and overburden stockpiles The licensee owns the land to the north, east and may be located within 30 metres of the licence | south while Town Line Road to the west is closed to boundary public access. This will allow stripped material from site (1)17 & Topsoil and overburden may be transferred to preparation to be used immediately for progressive existing Licence #5481 and/or Licence #608621. rehabilitation or for overburden to be used in ramp construction in other parts of the existing licences. To allow movement of groundwater from the lakes Portions of the quarry faces shall remain vertical. towards off site features and to create a more See drawings 3 of 4 and 4 of 4. diversified habitat and visually interesting rehabilitated landform. The licence boundary shall be demarcated every 30 Portions of the licence boundary shall not be metres where required. See Operational Note 36

55. The maximum annual tonnage for this site is unlimited.

56. The site is not located within the Protected Countryside of the Greenbelt Plan. 57. Blasting may occur up to three times per day, Monday to Friday between 8:00 a.m. and 6:00 p.m. excluding statutory

58. There are no sensitive receptors within 500 m of the site. The closest sensitive receptor is over 1,200 metres from the site.

for additional information.

3.5m x 2.5m

Typical Control Hut Detail

elevation 342.7 ma

side slope

Minimum Separation

(flagged in field and

GPS surveyed)

57m - Proposed Watermain —

44m - Existing Watermain —

— 63m - Licence Boundary / Limit of Extraction —

_ Typical recharge well control hut

Hydrogeological mitigation facilities

(i.e. inlet & outlet structures) as —

(AMP) May 2003 - Modified

December 2011, (prepared by:

CRA. Ecoplans & Goodban

various locations within this

separation area. No other elevation 340.0 masl -

cological Consulting) will occur at

sturbances or grade changes are

U1 Setback Detail

ermitted within the separation area.

detailed on Figure C.4 in the

Updated Adaptive Environmental

Management and Protection Plan

Technical Report Recommendations

Additional Land/ Owned by Licensee

V2 Setback Detail N.T.S

Target water level is in accordance with direction

from NDMNRF and documented in the Annual

Water Monitoring Reports for Milton Quarry

Maximum measured wetland

water level 340.7 masl

A. <u>Air Quality</u> 1. 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 quarry is located within 1,000 metres of a sensitive receptor.

2. 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.

3. The licensee shall obtain an Environmental Compliance Approval under the Environmental Protection Act where required to carry out operations at the quarry.

4. The site will operate in accordance with CRH's Dust Control Work Instruction, which functions as a Best Management Practices Plan for fugitive dust, which may be amended from time to time, considering actual impacts and operational considerations. The recommendations in the Work Instruction are based on the maximum daily production rates. At lower production rates, the control measures specified in the Dust Control Work Instruction can be reduced accordingly, provided dust remains mitigated on site.

1. Should deeply buried archaeology remains be found during the course of site preparation and/or extraction related activities, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) shall be notified.

2. In the event that human remains are encountered during construction or extraction activities, the licensee shall immediately contact both the MHSTCI and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services (MGCS).

C. <u>Blasting</u>

1. All blasts shall be monitored for both ground vibration and overpressure by an independent Blast Consultant at the closest privately owned sensitive receptors adjacent the site, or at a location that is closer than a sensitive receptor, with a minimum of two (2) instruments - one installed in front of the blast and one installed behind the blast. 2. The guideline limits for vibration and overpressure shall adhere to standards as outlined in the MECP Model Municipal Noise Control By-law publication NPC 119 (1978) or any such document, regulation or guideline which supersedes this

3. In the event of an exceedance of NPC 119 limits or any such document, regulation or guideline which supersedes this standard, blast designs and protocols shall be reviewed prior to any subsequent blasts and revised accordingly in order to

4. Orientation of the aggregate extraction operation will be designed and maintained so that the direction of the overpressure propagation will be away from structures as much as possible.

. 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.

6. Blasting procedures such as drilling and loading shall be reviewed on a yearly basis and modified as required to ensure compliance with industry standards.

. Geology and Water Resource

7. Detailed blast records shall be maintained in accordance with current industry best practices.

necessary response actions, in accordance with the Adaptive Environmental Management and Protection Plan (AMP)

1. Implement and operate the proposed water management system mitigation and rehabilitation measures, including any

2. Conduct the water and ecology monitoring program and reporting in accordance with the AMP Addendum. 3. Amend the OWRA approvals as necessary to reflect the aspects of the water management measures relevant to those

4. Extend the implementation of the Milton Quarry Contingency and Pollution Prevention Plan to include the Milton Quarry

Natural Environment

already been removed.

1. No development is permitted within the habitat of Jefferson Salamander and Unisexual Ambystoma (Jefferson Salamander dependent population) unless authorized by an Endangered Species Act (ESA) Permit or other authorization from the Ministry of Environment, Conservation and Parks (MECP). A copy of the ESA Permit will be provided by the proponent to the NDMNRF Aggregate Inspector.

2. The limit of extraction shall be clearly demarcated with monument markers (e.g., metal T-bars or equivalent) with maximum spacing of 20 metres between markers. In proximity to the Significant Woodland boundary and Ecological Enhancement Plan (EEP) areas, the maximum spacing of monument markers shall be 10 metres and signage stating "Ecological Area -No Disturbance" or equivalent wording shall be installed.

3. The limits of disturbance for the WMS installation shall be clearly demarcated, especially in the vicinity of the Significant Woodland, wetlands, buffer areas and EEP areas, prior to commencing WMS installation works.

4. Silt/exclusion fencing shall be installed in the location shown on the plan view. Salamander Excluders will be installed at the locations shown on the plan view. Silt/Exclusion fencing may be heavy-duty silt fencing, Animex Wildlife Fencing or equivalent. The condition of the fencing shall be monitored on a regular basis and it shall be promptly repaired as

5. The watermain access road located between the two Salamander Excluders shall only be used for WMS monitoring and maintenance, ecological enhancement works and ecological monitoring. It shall not be used for operational purposes.

6. Tree-clearing shall not occur during the active period for bats and the bird breeding season between April 1st/ and October 31st/. This will avoid potential contraventions of the Migratory Bird Convention Act and the Endangered Species Act.

Stripping of topsoil and ground vegetation shall not occur during the bird breeding season between April 1st/ and August 26th/. This will avoid potential contraventions of the Migratory Bird Convention Act and the Endangered Species Act. Stripping of overburden may occur during the bird breeding season, provided that the topsoil and ground vegetation had

8. Boulders, rocks and cobbles will be salvaged from fence lines and stone piles within the limit of extraction. Weathered rocks will also be salvaged during stripping operations. This material will be stockpiled within the extraction area for use as part of

9. Logs, stumps, root wads and branches will be salvaged during clearing and grubbing operations. Tree tops may be chipped. The salvaged woody material and wood chips will be stockpiled within the extraction area for use as part of the EEP and future quarry rehabilitation.

10. The Water Management System (WMS) shall be installed consistent with the restrictions and design considerations provided in the AMP Addendum (GHD and Goodban Ecological Consulting Inc., December 2021).

11. The EEP shall be implemented as per the details outlined on drawings 3 of 4 and 4 of 4.

12. Blasting - Peregrine Falcon

a. Each year, between early April and mid-May, a qualified ecologist will check to see if Peregrine Falcons are present and nesting within the area to be extracted.

b. In the event the qualified ecologist confirms Peregrine Falcons are nesting within the area to be extracted or within the adjacent Licence No. 608621:

b.a. Quarry personnel shall not walk within 100 metres of an active falcon nest during the period April 15th to July 31st

b.b. Quarry equipment (such as trucks and loaders) shall not be operated within 25 metres of a nest between April

b.c. When extending the existing south face of the quarry southeastward into the MQEE extraction area, blasting shall not occur within 125 metres of a nest while it is occupied and overpressure shall not exceed 140 dB. During the egg-laying and incubation period (April 20th to June 20th), the ground vibration at a nest shall not exceed 35

c. A qualified ecologist will confirm when the birds are no longer using the nest and then the restrictions listed in note 12.b above will no longer apply.

F. Noise 1. The quarry equipment shall satisfy the noise emission levels listed below.

millimetres per second and overpressure shall not exceed 140 dB.

Reference Sound Pressure Level at 30m (dBA) Rock Drill 85 Extraction Loader 76 Excavator 70

2. 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. 3. Drilling operations shall be limited to daytime hours only (07:00 to 19:00).

The operation may be carried out in one or more separate lifts. If extraction is carried out in multiple lifts, the first lift shall have a maximum elevation of 325 masl.

5. 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".

Noise controls for Scenario 1

Off-Road Truck

a. The extraction, processing and shipping equipment operating in the quarry is limited to:

Three (3) Rock Drills

 Two (2) Extraction Loaders One (1) Excavator

24 Off-Road truck trips per hour (48 passes per hour)

operating simultaneously for the first lift only. b.b. Drilling in the Phase 1 "single drill area" indicated the operational plan is limited to one (1) rock drill for the first lift only. Two drills can be used simultaneously in this area on the first lift if a 3 m acoustic barrier is constructed to

b.a. Drilling in the Phase 1 "restricted drilling area" indicated on the operational plan is limited to two (2) rock drills

block line of sight between any drills and R17. c. Phase 2

c.a. No additional Noise Controls.

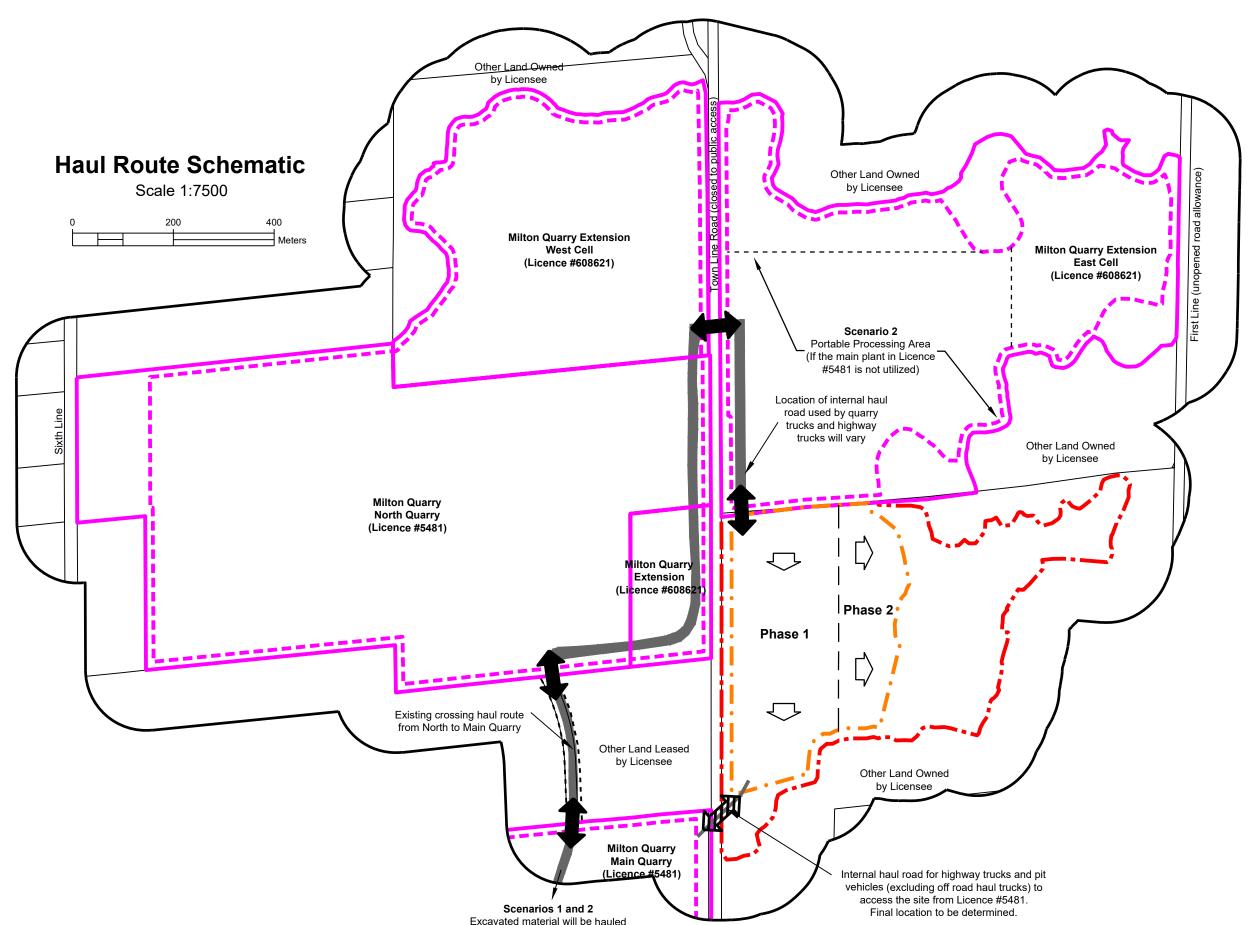
Noise controls for Scenario 2 a. The extraction, processing and shipping equipment operating in the quarry is limited to:

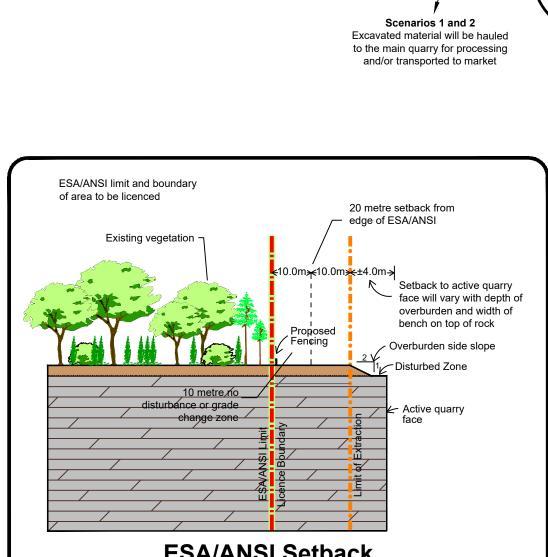
 Three (3) Rock Drills Two (2) Extraction Loaders

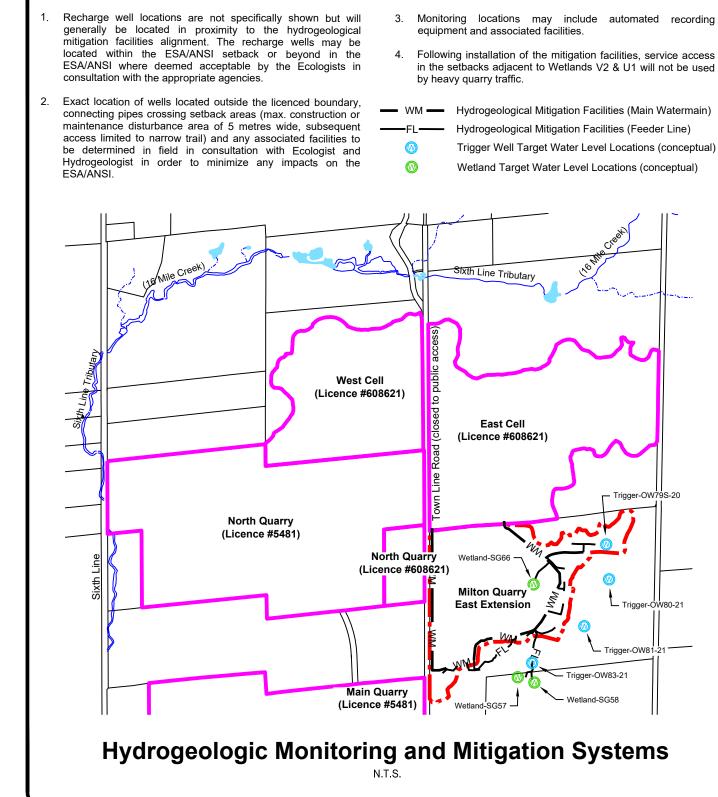
• 32 Off-Road truck trips per hour (64 passes per hour)

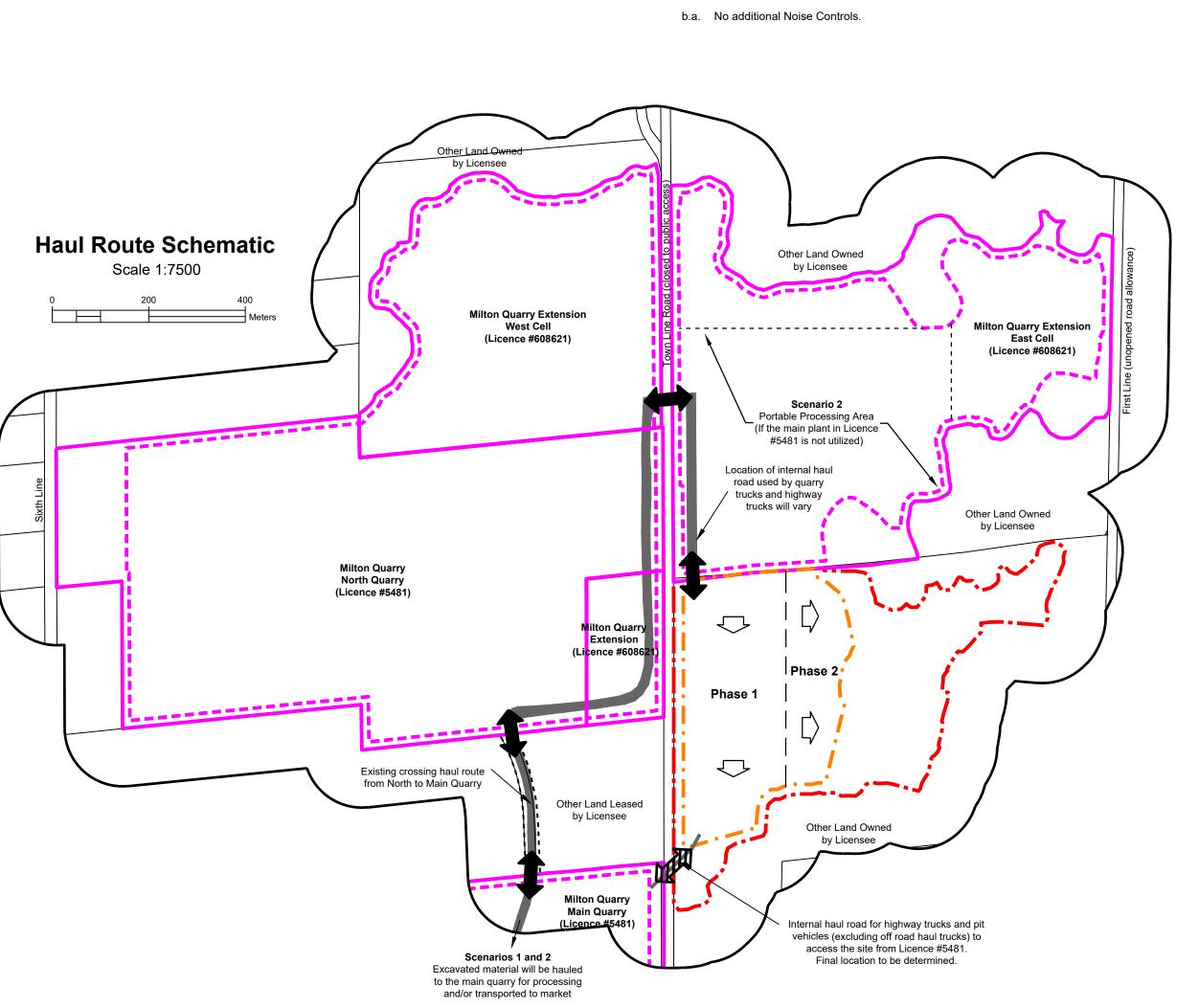
One (1) Excavator

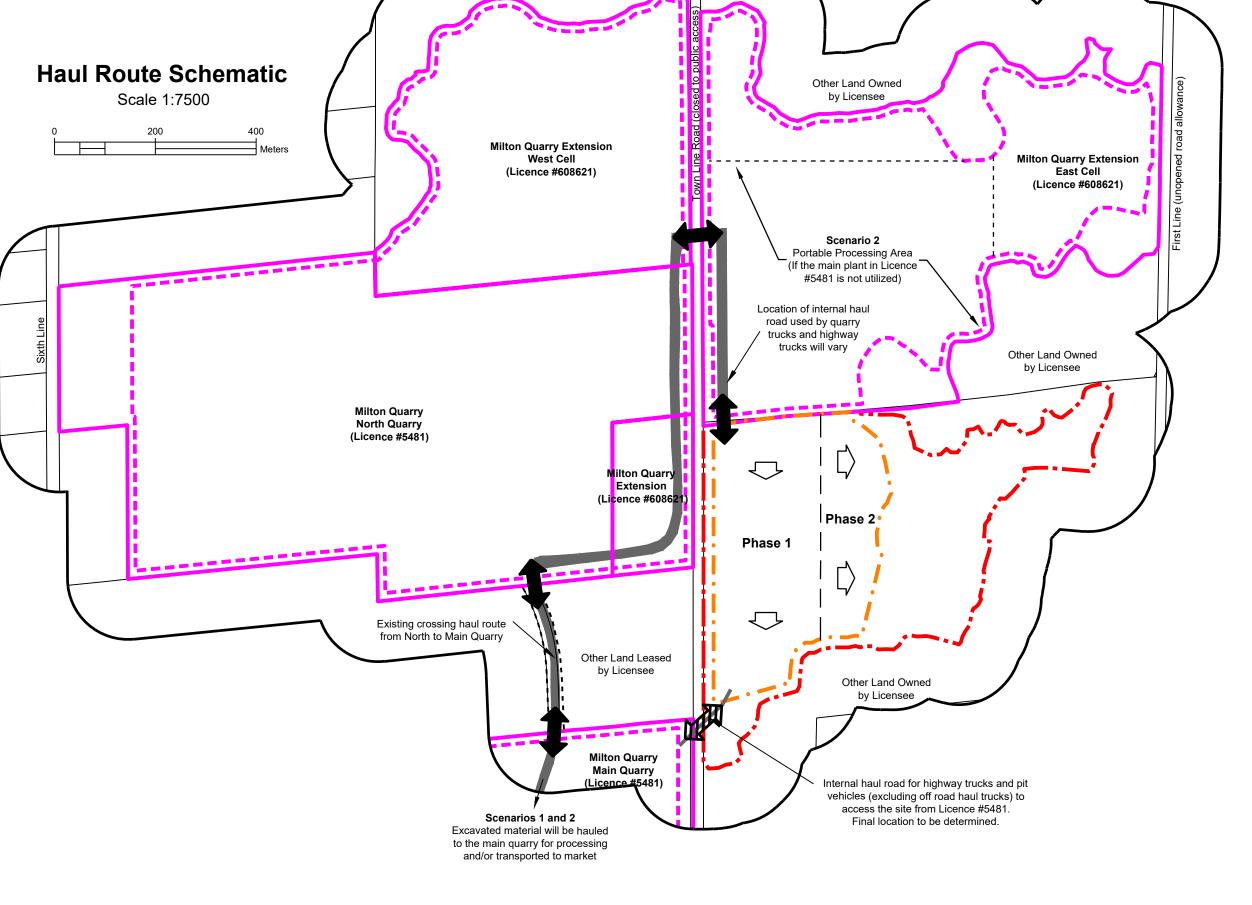
b. Phases 1 and 2

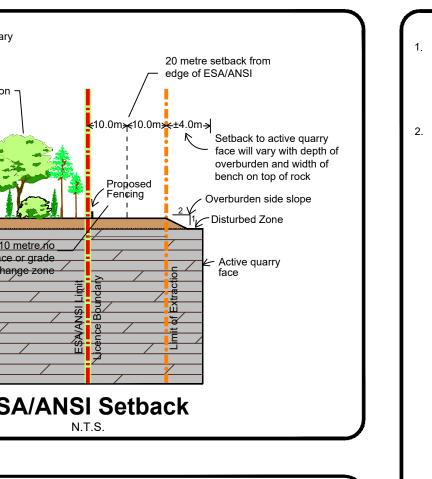


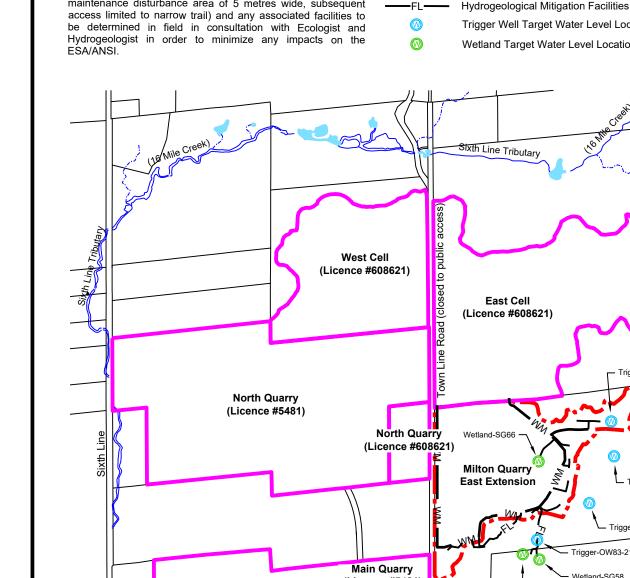












Wetland limit (flagged in field and GPS surveyed) Target water level is in accordance with direction from NDMNRF and documented in the Annual Water Monitoring Reports for Milton Quarry water level 337.75 masl Base of wetland 337.34 masl

ESA/ANSI Setback Minimum Separation

File Name Drawing No.

File Path

N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plan

Existing Limit of Extraction Limit of Extraction —149— Contours with Elevation —150 — Metres above sea level (MASL) Licence Boundary Lots and Concession Service Access Road Trail Segment Overhead Hydro

Legal Description

Town of Halton Hills

Part of Lots 11 and 12, Concession 1

🖊 Licence Boundary

Regional Municipality of Halton

(former geographic Township of Esquesing)

Disturbed Area Silt / Exclusion Fencing Wooded Area

Existing Watermain Main Watermai

Existing Licence Boundary

Operational Access Feeder Line Limited - No Off Road Haul Trucks 1.2m post & wire fence unless otherwise noted Existing - Thin | Proposed - Bold

Field Entrance / Exit General Direction of Spot Elevation Top - Existing (MASL) / Middle - Water Table (MASL) Bottom - Maximum Depth of Extraction (MASL)

Cross Sections

Site Plan Acronyms

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1. ARA - Aggregate Resource Act 2. NDMNRF - Ministry of Northern Development, Mines, Natural Resources and Forestry

3. MHSTCI - Ministry of Heritage, Sport, Tourism and Culture Industries

Salamander Excluder

Location

Control Hut

4. MGCS - Ministry of Government and Consumer Services 5. MECP - Ministry of the Environment, Conservation and Parks

6. AMP - Adaptive Environmental Management and Protection Plan 7. ANSI - Area of Natural and Scientific Interest

8. ESA - Environmentally Sensitive Area 9. OWRA - Ontario Water Resources Act 10. MQEE - Milton Quarry East Extension

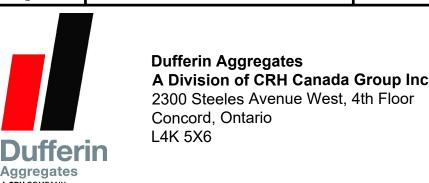
11. EEP - Ecological Enhancement Plan 12. WMS - Water Management System

13. MASL - Metres above mean sea level

14. PTTW - Permit to Take Water

Site Plan Amendments Site Plan Revisions (Pre-Licencing)

113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN MHBC Stamp MHBC Stamp Brian Zeman **Christopher Poole** Is authorized by the Ministry of Is authorized by the Ministry of Northern Development, Mines, Northern Development, Mines, Natural Resources and Forestry Natural Resources and Forestry pursuant to Subsection 0.2(3)(e) pursuant to Subsection 0.2(3)(f) of Ontario Regulation 244/97 to of Ontario Regulation 244/97 to prepare and certify site plans. prepare and certify site plans.



Milton Quarry East Extension 10305 Nassagaweya Esquesing Townline, Halton Hills, Ontario

NDMNRF Licence Reference No. **Applicant's Signature** Plan Scale: 1:2000 (Arch E) December 2021

Operational Plan 2 of 4

									Legal Description
Unit ¹ Area (ha)	Site Conditions	Table 1: M Woody Species Planting List Year(Milton Quarry East Extension - Ecological Enhancem	nent Plan (EEP) Unit Summary Other Management Activities	Notes	A. General 1. The following ecological enhancements and quarry rehabilitation are derived from the Ecological Enhancement Plan (EEP) and	2.2. Where practical, woody debris piles and features will have a minimum footprint of 2 metres x 2 metres and a minimum height of 1 metre, to provide habitat for snakes, amphibians, small mammals and other wildlife. 2.2. As a general guideline, woody piles and features should be catablished at a minimum density of 25 woody debris piles/features.	3. The shallower wetlands (generally < 1.0 metre) will predominantly be shallow marshes, meadow marshes or thicket swamp. The marshes will support a mix of Common Cattail, sedges, Water-plantain, Common Arrowhead and scattered shrubs. At greater depths floating-leaved and submergent aquatic species such as Pondweeds, Common Bladderwort, Coontail, Fragrant Water-lily and	Part of Lots 11 and 12, Concession 1 (former geographic Township of Esquesing) Town of Halton Hills
DA1 0.062	Disturbed area. Small excavation that contains water briefly in the spring. Formerly used as a "mud run" for	Not applicable. 1-3	Restore previously disturbed area. Raise grade to avoid attracting mole salamanders during breeding season.	Use fill materials that will serve to create several potential snake	Restoring Unit DA1 by filling the old excavation and creating several snake hibernacula will serve to:	Rehabilitation Plan Report (Goodban Ecological Consulting Inc. December, 2021). The licensee shall complete the following requirements. H.	2.3. As a general guideline, woody piles and features should be established at a minimum density of 25 woody debris piles/features per hectare. Woody debris piles/features will be installed prior to any trees being planted in a given area. EEP - Wetland U1 Habitat Enhancements	Stonewort will become established. Wetland plant plugs and seeds from local wetlands and other appropriate sources can be used to introduce the desired native emergent and floating-leaved species, however many wetland species will typically colonize naturally if the suitable physical conditions are correctly established.	Town of Halton Hills Regional Municipality of Halton
	off-road trucks and ATVs.		Create potential snake hibernacula.		 Discourage trespassers on ATVs; Prevent mole salamanders from being attracted to water that is only present for a short period in the springtime; and, Provide potential hibernation habitat for snakes and other wildlife. 	Ecological Enhancement Plan for Land That Will Not be Extracted B. EEP Target Vegetation Communities	1. Implementation of the enhancement measures listed below will serve to increase the productivity of U1 for amphibian breeding, including Jefferson Salamander:	4. Grading (coarse and fine) will be undertaken to sculpt an irregular shoreline and produce a variety of slopes, both in shallow water and above water, and transitioning to nearshore/upland areas and deep-water areas. If suitable organic material is available, it will be added to provide a medium for plant germination and growth. It is critical that any organic materials are not contaminated by seeds,	Legend Licence Boundary Existing Licence Boundar
TP-B1 0.178	Old Field Meadow. Mostly ploughed in	White Birch (30%) - White Cedar (30%) - 1-2	Buffer to Unit TP-RA1 and Significant Woodland.		Complete this work in conjunction with nearby WMS installation work. Narrow buffer strip beside the watermain alignment. This outer edge	The following are the target vegetation communities for the MQEE Ecological Enhancement Plan: Dry-Fresh Cedar Coniferous Forest Ecosite (FOC2)	1.1. Remove undesirable woody vegetation (e.g., declining Red-osier Dogwood and shrub willows); thin out any White Ash regeneration;	roots or other propagules of invasive plant species such as European Common Reed, Purple Loosestrife, etc. Gravel or sand beaches will be created along the shorelines. Granular (gravel, sand, cobble) areas in the shallow water and on shoals will reduce the density of vegetation growth but provide habitat for other aquatic organisms (benthic invertebrates) and foraging fish, as well as spawning habitat for other fish species.	
	late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock piles, shrub thicket and White Ash regeneration.	White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	 Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. 	out any White Ash regeneration.	of this unit comes within 10 m of the extraction limit.	 Fresh-Moist White Cedar Coniferous Forest Ecosite (FOC4) Dry-Fresh White Cedar Mixed Forest Ecosite (FOM4) Fresh-Moist White Cedar - Hardwood Mixed Forest Ecosite (FOM7) 	 1.2. Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration); 1.3. Plant Swamp Maple (<i>Acer X freemanii</i>), Silver Maple (<i>Acer saccharinum</i>) and White Cedar (<i>Thuja occidentalis</i>) around the edges of Wetland U1; 	 The addition of submerged and partially submerged rocks/boulders, root masses and logs will provide basking opportunities for turtles, refuge and attachment sites for invertebrates and fish, and foraging/perching sites for birds. 	Limit of Extraction Existing Limit of Extraction
TP-B2 0.488	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b).	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	Buffer to Units TP-RA3, WE1 and Wetland U1. Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.	Remove undesirable woody vegetation (e.g., Common Buckthorn).	Narrow buffer strip beside the extraction limit.	 Dry-Fresh Oak - Maple - Hickory Ecosite (FOD2) Dry Fresh Poplar - White Birch Deciduous Forest Ecosite (FOD3) Maple Mineral Deciduous Swamp Ecosite (SWD3) 		 M. Rehabilitation Plan - Islands 1. At least three islands covering approximately 0.4 hectares will be created as part of the MQEE Rehabilitation Plan. The islands will be 	Contours with Elevation Metres above sea level (MASL) 120m Offset From Licence Boundary
TP-B3 0.302		White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	Buffer to Units TP-RB4, TP-RB5 and WE1. Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson	Remove undesirable woody vegetation (e.g., Common Buckthorn).	Narrow buffer strip beside the extraction limit.	C. EEP Reforestation Approach Prior to planting, any non-native woody species such as Common Buckthorn and other non-desirable species will be removed and stumps treated with herbicide to prevent re-sprouting. Suitable native woody regeneration will be retained. Planting will occur during	Install egg mass attachment sites within wetland or (e.g., small branches with line twigs), and, Install some small clusters of rocks and woody debris within Wetland U1 to provide potential refuges for salamander larvae and juveniles.	capped with various granular substrates (gravels and coarse sands), as well as patches of boulders and cobbles. The islands will be planted with suitable shoreline and tallgrass prairie species such as Little Bluestem, Switchgrass, Big Bluestem, etc. At least 10 logs and/or stumps/root wads will also be placed on the islands.	Wooded Area Licence Boundary Lots and Concessions
TP-B4 0.244		White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	Salamander and Unisexuals. Buffer to Significant Woodland. Expand and enhance Significant Woodlands.	Remove undesirable woody vegetation (e.g., Common Buckthorn).	Narrow buffer strip beside the watermain alignment. The outer edge of this unit comes within 10 m of the extraction limit.	early spring or late fall, with spring planting being preferred. Nursery stock will be derived from local seed sources, i.e., from Seed	habilitation Plan for Land That Will be Extracted	2. The following community types are expected to develop on the islands: • Mineral Open Beach/Bar (BBO1)	Lots and Concessions
TP-B5 0.055		- Other suitable native species (10%) White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	Buffer to Significant Woodland. Expand and enhance Significant Woodlands. Expand and enhance habitat for Jefferson Salamander and	Remove undesirable woody vegetation (e.g., Common Buckthorn); th out any White Ash regeneration. Retain desirable woody vegetation (e.g., hawthorns, hardwood)	n Buffer patch beside watermain and feeder lines. Outer edge of this unit comes within 10 m of the extraction limit. If feasible, this area should be planted following the installation of	2. Areas proposed for tree-planting/reforestation will be planted at a density of 2000 trees/ha (2.0 x 2.5 metres spacing) in order to maximize the probability that planted areas will meet woodland density targets in the short and long term. Natural tree regeneration will also contribute to the woodland density targets. Plantings will occur in nodes, with access routes being left open to allow access	Rehabilitation Plan - General Approach 1. The MQEE Rehabilitation Plan will cover the 15.9 hectares extraction area and include the following main rehabilitation themes:	 Willow Gravel Shrub Beach Type (BBS1-2) Dry Tallgrass Prairie Ecosite (TPO1) 	Wetland Boundaries Delineated by GEC Trail Segment
TP-6 0.131	Old Field Meadow (Unit CUM1-1a) and Cultural Savannah (CUS1).	White Birch (30%) - White Cedar (30%) - 1-2 White Pine (20%) - Trembling Aspen (10%)	Unisexuals. Buffer to Significant Woodland. Expand and enhance Significant Woodlands.	regeneration).	WMS feeder lines in this vicinity. Buffer patch beside watermain and feeder lines. Outer edge of this unit comes within 10 m of the extraction limit.	for maintenance (e.g., watering, weed control, etc.). Any remaining gaps will be planted once the original plantings have reached a "free-to-grow" condition.	 Deep Lake Deep Wetlands Shallow Wetlands 1.5 ha 	3. Approximately nine turtle nesting sites will be constructed on the islands (at least three per island). Dimensions will be approximately 8-10 metres by 4-5 metres and the nesting areas will be oriented to provide south and/or southwest exposures. Any topsoil will be stripped and heavy-duty landscape fabric will be installed to discourage woody plant growth. Suitable granular material will be piled on top of the landscape fabric (up to 1.5 metres deep).	Shallow Wetland Road
TP-M1 0.981		- Other suitable native species (10%) Sugar Maple (30%) - White Birch (30%) - 1-5 Basswood (10%) - White Cedar (10%) -	Expand and enhance habitat for Jefferson Salamander and Unisexuals. Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson		If feasible, this area should be planted following the installation of WMS feeder lines in this vicinity. Pairly large patch of old field with early successional patches of shrubs. Trembling Aspen and White Ash. Tree-planting in Unit TP-M1	Woody species selections for each EEP Unit are provided in Table 1. D. EEP Reforestation Timelines	 Islands Reforestation Cliffs Rocky Shoals 10.4 ha 11.5 mark 12.5 mark 13.6 mark 14.7 mark 15.7 mark 16.7 mark 17.7 mark 18.7 mark 19.7 mark 19.7 mark 10.4 mark	 N. Rehabilitation Plan - Reforestation Approach 1. The woody species selected for planting and the forest types targeted are complementary to and reflective of the surrounding 	Post Rehabilitation Deep Wetland Service Access Road
	/ /	White Pine (10%) - Other suitable native species (10%)	Salamander and Unisexuals. • Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	Retain desirable woody vegetation (e.g., hawthorns, hardwood)	will contribute to reforesting an open gap between two areas of mature forest, along with Units TP-M2, TP-RB1, TP-RB2 and	 The buffer planting areas TP-B1 to TP-B6 will be planted in Years 1 to 2 after licence issuance. Planting areas TP-RA1 to TP-RA7 will be planted in Years 1 to 3 after licence issuance. These areas are intended to reforest the most direct links between Wetland U1 and Wetland V2, and between Wetland U1 and the Significant Woodland to the northeast and 	* 5.1 hectares shall be forested. 4.9 hectares will be actively forested in accordance with Table 2 on this drawing and 0.2 hectares of land adjacent to the cliff faces which will naturally succeed to forest condition.	landscape. The reforestation approach will generally be similar to that described for the Ecological Enhancement Plan. Approximately 5.1 hectares of rehabilitated area will be reforested.	Post Rehabilitation
TP-M2 0.646	Old Field Meadow (Unit CUM1-1a),	Bur Oak (20%) - Red Oak (20%) - Sugar 1-5	Expand and enhance Significant Woodlands.	Install habitat features: rock piles (25) and woody debris (25). Clean up old farm junk piles. Remove undesirable woody vegetation (e.g., Common Buckthorn); the	n Varied patch with old field, shrub thickets, clusters of open-grown	east. 3. Planting areas TP-RB1 to TP-RB9 will be planted in Years 1 to 5 after licence issuance. These areas are intended to reforest links	2. The landforms and habitats that will be created are complementary to the Escarpment landscape and well connected with the adjacent EEP areas, existing Halton Forest North ANSI and the Cox Tract, as well as with the East Cell Rehabilitation Plan features.	 Reforestation details are shown on Figures 1.0 and 2.0. Species selections and treatments for the various units are provided in Table 2. Rehabilitation Plan - Reforestation - Planting Approach 	Deep Lake Post Rehabilitation Overhead Hydro
	Staghorn Sumac Shrub Thicket (CUT1-1) with cluster of mature trees.	Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	 Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. 	Retain desirable woody vegetation (e.g., hawthorns, hardwood	trees, dolostone outcrops, etc. Strategic location near Wetland U1 and fairly close to Significant Woodland and Wetlands V2 and W41 (both are Jefferson Salamander breeding habitat). Tree-planting in Unit TP-M2 will contribute to reforesting an open gap between two	Planting areas TP-M1 and TP-M2 include a vegetation management component (such as controlling woody invasive species and thinning White Ash regeneration). In these areas, the vegetation management treatments and plantings will be completed in Years 1.	Rehabilitation Plan - Target Vegetation Communities 1. The following are the target vegetation communities for the MQEE Rehabilitation Plan:	1. Prior to planting, any non-native woody species such as Common Buckthorn and other non-desirable species will be removed and stumps treated with herbicide to prevent re-sprouting. Planting will occur during early spring or late fall, to minimize transplant shock, with parting planting being preferred. Nursely stock will be derived from lead accurage, i.e., from Seed Zene 24, or adjacent acceptance.	Islands Existing Watermain
70.004				poplar-ash patches. • Install habitat features: rock piles (16) and woody debris (16). • Clean up old farm junk piles.	areas of mature forest, along with Units TP-M1, TP-RB1, TP-RB2 and TP-RB3.	to 5 after licence issuance. 5. Tree-planting in and around Wetland U1 will be completed in Years 1 to 3 after licence issuance.	 Mineral Open Beach/Bar (BBO1) Willow Gravel Shrub Beach Type (BBS1-2) Carbonate Open Cliff Ecosite (CLO1) White Cedar Treed Carbonate Cliff Type (CLT1-1) 	with spring planting being preferred. Nursery stock will be derived from local seed sources, i.e., from Seed Zone 34, or adjacent seed zones if necessary. The nursery stock to be planted will generally be a mix of plugs and container-grown stock. 2. Areas proposed for tree-planting/reforestation will be planted at a density of 2000 trees/ha (2.0 x 2.5 m spacing) in order to maximize	Post Rehabilitation Forceted Areas
1P-RA1 0.286	small cluster of Common Buckthorn and	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood	unit TP-RA1 is approximately 50 m away from Wetland V2, which is Jefferson Salamander breeding habitat. Strategically located between Wetlands V2 and U1. Tree-planting in Units TP-RA1, TP-RA2 and TP-RA3 will establish a wooded connection between Wetland U1 and the Significant Woodland adjacent to Wetland V2.	 E. EEP Reforestation - Maintenance and Monitoring 1. Competing herbaceous vegetation will be controlled by placing mulch or installing Cocodisc weed control mats around each planted 	 White Birch - Aspen Treed Carbonate Cliff Type (CLT1-3) Dry-Fresh Cedar Coniferous Forest Ecosite (FOC2) Fresh-Moist White Cedar Coniferous Forest Ecosite (FOC4) 	the probability that planted areas will meet woodland density targets in the short and long term. Natural tree regeneration may also contribute to the woodland density targets. P. Rehabilitation Plan - Reforestation - Maintenance and Monitoring	Forested Areas Post Rehabilitation - Within Limit of Extraction Main Watermain
TP-RA2 0.336	Old Field Meadow: Mostly ploughed in late 2020 (CUM1-1b).	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.	Remove undesirable woody vegetation (e.g., Common Buckthorn); the	<u> </u>	tree or shrub (up to 50 cm radius of mulch around each planting, depending on conditions). Where access permits, plantings will be watered during dry periods (defined as a 14-day period between May and September with less than 25 mm of precipitation) until establishment has occurred (i.e., in Year 1 and 2 following planting).	 Fresh-Moist White Cedar - Hardwood Mixed Forest Ecosite (FOM7) Dry-Fresh Oak - Maple - Hickory Ecosite (FOD2) Dry Fresh Poplar - White Birch Deciduous Forest Ecosite (FOD3) 	 Competing herbaceous vegetation will be controlled by placing mulch or installing Cocodisc weed control mats around each planted tree or shrub (up to 50 centimetres radius of mulch around each planting, depending on conditions). Where access permits, plantings 	Forested Areas Post Rehabilitation - Outside Limit of Extraction Feeder Line
TP-RA3 0.244	, , ,	Red Oak (30%) - Bur Oak (15%) - Sugar 1-3	Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. Expand and enhance Significant Woodlands.	regeneration). • Install habitat features: rock piles (8) and woody debris (8). • Remove undesirable woody vegetation (e.g., Common Buckthorn); the	wooded connection between Wetland U1 and the Significant Woodland adjacent to Wetland V2. n Unit TP-RA3 is strategically located between Wetlands V2 and U1.	2. Plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. "Free-to-grow" is a condition in which a forest is considered established based on a minimum stocking standard, a minimum height and freedom from competition that could impede growth. At the free-to-grow condition, the survival (stocking standard) of planted trees shall be a minimum of 80%.	 Cultural Woodland Ecosite (CUW1) Cultural Thicket Ecosite (CUT1) Dry Tallgrass Prairie Ecosite (TPO1) Mineral Thicket Swamp Ecosite (SWT2) 	will be watered during dry periods (defined as a 14-day period between May and September with less than 25 millimetres of precipitation) until establishment has occurred (i.e., in Year 1 and 2 following planting). 2. Plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. At the free-to-grow condition, the	Snake Hibernaculum Fence
	late 2020 (CUM1-1b).	Maple (15%) - White Pine (20%) -Basswood (10%) Other suitable native species (10%)	 Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. 	out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood	Tree-planting in Units TP-RA1, TP-RA2 and TP-RA3 will establish a wooded connection between Wetland U1 and the Significant Woodland adjacent to Wetland V2.	If survival is less than 80%, replacements will be planted in order to achieve a density of 1600 trees/ha. Once free-to-grow conditions are achieved any gaps left open for maintenance access will be planted at the same initial 2000 trees/ha density. For any replacement plantings, the species mix may be changed in order to utilize woody species with the highest survival rates for a particular area.	Mineral Shallow Marsh Ecosite (MAS2) Mixed Shallow Aquatic Ecosite (SAM1) Rehabilitation Plan - Deep Lake	survival (stocking standard) of planted trees shall be a minimum of 50%. If survival is less than 50%, replacements will be planted in order to achieve a density of 1000 trees/ha. For any replacement plantings, the species mix may be changed in order to utilize woody species with the highest survival rates for a particular area.	Post Rehabilitation 1.2m post & wire fence unless otherwise noted Existing - Thin Proposed - Bold Cliff Face
TP-RA4 1.138	late 2020 (CUM1-1b). Some portions	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander	Retain desirable woody vegetation (e.g., hawthorns, hardwood	This larger unit is located between Wetland U1 and the Significant Woodland. The distance between Wetland U1 and Significant Woodland is approximately 140 m. Tree-planting in Units TP-RA4, TP-RA5, TP-RA6 and TP-RA7 will establish a wooded connection	F. EEP Vegetation Management Areas		 Q. Rehabilitation Plan - Cliffs 1. Approximately 673 metres of cliffs will be created as part of the MQEE Rehabilitation Plan. Figures 2.0 and 4.0 show cliff details. 	Cliff Face Post Rehabilitation Entrance / Exit Field Entrance
TP-RA5 0.174	shrub patches and trees. Old Field Meadow: Mostly ploughed in late 2020 (CUM1-1b).	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood	and Unisexuals. • Expand and enhance Significant Woodlands. • Enhance potential migration and dispersal habitat for Jefferson	 Install habitat features: rock piles (28) and woody debris (28). Remove undesirable woody vegetation (e.g., Common Buckthorn); thout any White Ash regeneration. 	between Wetland U1 and the Significant Woodland. This unit is located between Wetland U1 and the Significant Woodland. Tree-planting in Units TP-RA4, TP-RA5, TP-RA6 and	 Units TP-M1 and TP-M2 contain old field vegetation, with some patches of woody vegetation. The existing woody vegetation will be managed to select for desirable species and individual trees and the remaining areas will be planted with suitable tree species. Vegetation management activities proposed for Units TP-M1 and TP-M2 include the following: 	The deep water areas will also provide habitat for a variety of top predator and game species that utilize deeper water habitats. 2. Deeper water cover will be provided by creating several reef shoals and treatment of the backfill slopes and quarry faces that will be	2. While the former quarry faces will not be planted with trees or shrubs, it is anticipated that some woody vegetation will become established along the cliff rims and on the cliffs themselves, as is the case elsewhere at the Milton and Acton Quarries. The most frequently occurring species on the existing cliffs are White Birch, Trembling Aspen, White Cedar and White Pine.	Rocky Shoal Post Rehabilitation Gate
TO 211	,	(10%) Other suitable native species (10%)	Salamander and Unisexuals. • Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). Install habitat features: rock piles (4) and woody debris (4).	TP-RA7 will establish a wooded connection between Wetland U1 and the Significant Woodland.	2.1. Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration; remove defective stems;	submerged upon lake filling. The shoals will be created in deep water but will rise up to within 1-2 metres of the lake surface, with various exposures. They will be comprised of boulder and cobble material, with cobble faces on the exposed 'wave-washed' northwest faces. The addition of submerged boulders, patches of cobble/smaller rock and boulders, logs and root masses shall also be included. The upper 5 metres of some of the vertical quarry walls will be selectively blasted in some areas to create irregular faces and	3. It is anticipated that the following cliff community types will develop naturally over time:	Salamander Excluder
TP-RA6 0.321	Old Field Meadow: Mostly ploughed in late 2020 (CUM1-1b).	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create sumer and hibernation habitat for Jefferson Salamander and Unisexuals.	Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration).	This unit is located between Wetland U1 and the Significant Woodland. Tree-planting in Units TP-RA4, TP-RA5, TP-RA6 and TP-RA7 will establish a wooded connection between Wetland U1 and the Significant Woodland.	 2.2. Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration); 2.3. Interplant shade-tolerant species such as Sugar Maple in thinned out poplar-ash patches; 2.4. Install habitat features years piles (25) and wearly dahria (25); and 	underwater shelves that will provide deeper water cover. Woody debris (e.g., large stumps), large boulders and rock clusters will be incorporated into the backfill slopes down to depths of approximately 5 metres to provide cover in these areas.	 Carbonate Open Cliff Ecosite (CLO1) White Cedar Treed Carbonate Cliff Type (CLT1-1) White Birch - Aspen Treed Carbonate Cliff Type (CLT1-3) 	Location A1
TP-RA7 0.406	late 2020 (CUM1-1b). Some portions	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) -	and Unisexuals. • Expand and enhance Significant Woodlands. • Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.	, , , , , , , , , , , , , , , , , , , ,	n This unit is immediately adjacent to the Significant Woodland and located in between the woodland and Wetland U1. Tree-planting in Units TP-RA4, TP-RA5, TP-RA6 and TP-RA7 will establish a wooded	2.5. Clean up old farm junk piles.	Rehabilitation Plan - Wetlands The shoreline wetlands will cover approximately 2.7 hectares and they will be inter-connected with terrestrial and aquatic habitats. The shoreline wetlands will have water depths ranging from areas that are seasonally inundated to permanently inundated areas.		◆ Control Hut
TP-RB1 0.311	rock outcrops and rock piles, scattered shrub patches and trees. Old Field Meadow. Mostly ploughed in	Other suitable native species (10%) Bur Oak (20%) - Red Oak (20%) - Sugar 1-5	Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. Expand and enhance Significant Woodlands.	regeneration). • Install habitat features: rock piles (10) and woody debris (10). • Remove undesirable woody vegetation (e.g., Common Buckthorn); the	connection between Wetland U1 and the Significant Woodland. Tree-planting in Unit TP-RB1 will contribute to reforesting an open	G. EEP Habitat Features 1. Rock Piles	up to 2.0 metres deep in some locations. Those wetlands that generally have water depths of 0.0 to 1.0 metre are shown as Shallow Wetland (1.5 hectares). Those wetlands that generally have water depths of 1.0 metre to 2.0 metres are shown as Deep Wetland (1.2 hectares).		
	\ /	Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	 Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. 	Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). Install habitat features: rock piles (8) and woody debris (8).	gap between two areas of mature forest, along with Units TP-M1, TP-M2, TP-RB2 and TP-RB3.	1.1. During clearing/stripping operations and WMS installation, boulders, rocks and cobbles will be salvaged and repurposed as rock piles in the various EEP Units. In addition, boulders, rocks and cobbles may be salvaged directly from the extraction area in order to meet the planting timelines. Rock piles will have a minimum footprint of 2 metres x 2 metres and a minimum height of 1 metre, to provide refuge habitat for snakes, amphibians, small mammals and other wildlife.	 The following are the target shoreline wetland and cove communities: Mineral Open Beach/Bar (BBO1) 		
TP-RB2 0.155	late 2020 (CUM1-1b). Some portions	Bur Oak (20%) - Red Oak (20%) - Sugar 1-5 Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) -	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.		n Tree-planting in Unit TP-RB2 will contribute to reforesting an open gap between two areas of mature forest, along with Units TP-M1, TP-M2, TP-RB1 and TP-RB3.	1.2. As a general guideline, rock piles shall be established at a minimum density of 25 rock piles per hectare. Rock piles will be installed prior to any trees being planted in a given area.	 Willow Gravel Shrub Beach Type (BBS1-2) Mineral Shallow Marsh Ecosite (MAS2) Mixed Shallow Aquatic Ecosite (SAM1) Mineral Thicket Swamp Ecosite (SWT2) 		
	rock outcrops and rock piles, scattered shrub patches and trees.		Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	Install habitat features: rock piles (4) and woody debris (4). Clean up old farm junk.		Woody Debris 2.1. Logs, stumps, root wads, branches, etc., will be salvaged from the extraction area and WMS footprint for use in the various EEP	Concession 1		
TP-RB3 1.109	late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some	Sugar Maple (30%) - White Birch (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	 Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. 	out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood	Tree-planting in Unit TP-RB3 will contribute to reforesting an open gap between two areas of mature forest, along with Units TP-M1, TP-M2, TP-RB1 and TP-RB2.	Units. Logs will be cut into shorter lengths (1 to 2 metres) and placed in small random piles within the specified EEP Units. Root wads and stumps will be keyed into the ground. Branches will be cut up to form brush piles. Some woody material will be chipped and the fresh wood chips will be repurposed as mulch for use in the tree-planting operations.	Town or mares	or 13 F Halton	
TP-RB4 0.312	Old Field Meadow. A portion was ploughed in late 2020 (CUM1-1b) but	Silver Maple (25%) - White Cedar (25%) - 1-5 Trembling Aspen (15%) - Balsam Poplar (15%) - Basswood (10%) - Other suitable	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.	Remove undesirable woody vegetation (e.g., Common Buckthorn); the	This unit contains an old ditch line that no longer conveys flows. Following implementation of hydroperiod enhancement measures via the WMS, there may be some flow in the ditch. The woody species	Concession 7		Town oil	
	dry ditch runs through this unit.	native species (10%)	Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	regeneration). • Install habitat features: rock piles (8) and woody debris (8). • Install erosion control features (e.g., rip-rap) along ditch line, as necessary.	selected are facultative species that can tolerate some inundation (except Basswood).	Milton Quarry Extension			
TP-RB5 0.700	late 2020 (CUM1-1b). A small portion	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander	Retain desirable woody vegetation (e.g., hawthorns, hardwood	This unit is located between Wetland U1 and the Significant Woodland. Tree-planting in Units TP-RB5, TP-RB6, TP-RB7 and TP-RB8 will establish a wooded connection between Wetland U1 and the Significant Woodland.	Site Site	a subject to separate Plan Amendment to West and Amendment to West	344 × × × × × × × × × × × × × × × × × ×	
TP-RB6 0.420	scattered shrub patches and trees. Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). A small portion	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood	and Unisexuals. • Expand and enhance Significant Woodlands. • Enhance potential migration and dispersal habitat for Jefferson	 Install habitat features: rock piles (18) and woody debris (18). Remove undesirable woody vegetation (e.g., Common Buckthorn); thout any White Ash regeneration. 	n This unit is located between Wetland U1 and the Significant Woodland. Tree-planting in Units TP-RB5, TP-RB6, TP-RB7 and	Lake Level ± 333.0 masl reduced to the control of t	uce 15m setback to 0m We will will will will will will will wil	342 × × × × × × × × × × × × × × × × × × ×	
TP-RB7 0 377	some rock outcrops and rock piles, scattered shrub patches and trees.	(10%) Other suitable native species (10%) White Birch (30%) - Sugar Maple (20%) - 1-5	Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals. Expand and enhance Significant Woodlands.	Install habitat features: rock piles (11) and woody debris (11).	TP-RB8 will establish a wooded connection between Wetland U1 and the Significant Woodland. This unit is immediately adjacent to the Significant Woodland and	North Quarry (Licence #5481)	EWM EWM O	Additional Land when the second secon	
	late 2020 (CUM1-1b). Some portions	Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) -	Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood	located in between the woodland and Wetland U1. Tree-planting in Units TP-RB5, TP-RB6, TP-RB7 and TP-RB8 will establish a wooded connection between Wetland U1 and the Significant Woodland.	305 305			
TP-RB8 0.168	, , , ,	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	Expand and enhance Significant Woodlands. Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander	Retain desirable woody vegetation (e.g., hawthorns, hardwood	This unit is immediately adjacent to the Significant Woodland and located in between the woodland and Wetland U1. Tree-planting in Units TP-RB5, TP-RB6, TP-RB7 and TP-RB8 will establish a wooded connection between Wetland U1 and the	± 318 5 masl	TP-B1	TP.M.	
TP-RB9 0.092	Old Field Meadow (CUM1-1a) with White Ash regeneration.	Sugar Maple (40%) - Basswood (10%) - Bitternut Hickory (10%) - Ironwood (10%) -	and Unisexuals. • Expand and enhance Significant Woodlands. • Enhance potential migration and dispersal habitat for Jefferson	 Install habitat features: rock piles (4) and woody debris (4). Remove undesirable woody vegetation (e.g., Common Buckthorn); the 	Significant Woodland.	10 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	319 Salamander Excluder		
WE4 0.017	Wetland III and ourrounding thickets	White Pine (10%) - White Cedar (10%) - Other suitable native species (10%) Swamp Maple - Silver Maple - White Cedar 1-3	Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander a Unisexuals. • Expand and enhance Significant Woodlands.	Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). Install habitat features: rock piles (3) and woody debris (3). Remove undesirable woody vegetation (e.g., declining Red-osier	At present, Wetland U1 is not a viable salamander breeding pool	320	TP-RB1 Control Hut	TP-RB2	
	and tree clusters.		Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals. Create summer and hibernation habitat for Jefferson Salamander and Unisexuals.	Dogwood and shrub willows); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood	because it lacks sufficient hydroperiod. The hydroperiod will be enhanced via mitigation through the WMS. The proposed habitat improvements will increase the productivity of U1 for amphibian breeding, once the hydroperiod is restored.	Milton Querry 13	TP-RA3		Site Plan Amendments
			 Enhance breeding habitat for Jefferson Salamander and Unisexu Control invasive woody species. 	 Install egg mass attachment sites within Wetland U1 (e.g., small branches with fine twigs). Install some small clusters of rocks and woody debris within Wetland to provide potential refuges for salamander larvae and juveniles. 	J1	(Licence #608621)	Control Hut w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w w	Wetland W56	Site Fight Amendments
Total 10.553 1 EEP Unit Codes: DA	- Disturbed Area TP-B - Tree-plantii	ng - Buffer (Years 1-2) TP-M - Tree-planting - Refo	orestation & Vegetation Management (Years 1-5) TP-RA - Tree-pla	nting - Reforestation (Years 1-3) TP-RB - Tree-planting - Reforestation	(Years 1-5)	A I I I I I I I I I I I I I I I I I I I	TR-B2	A1	
		Т	Table 2: Milton Quarry East Extension - Rehabilitatio	n Plan Unit Summary		Note that the second se	TP-RA5	Additional Land	
Unit ¹ Area (ha) TP-RC1 1.035	Reforestation White Birch (30%)	10%) - Other suitable native species (10%) • Create	ite wildlife habitat. • Seed with	Other Management Activities bitat features: rock piles (26) and woody debris (26). a suitable groundcover seed mix.	Notes This will be a generally north-facing slope that has 7 m of relief (340 mASL - 333 mASL), leading down to the shoreline wetlands.	DW1 W W W W W W W W W W W W W W W W W W	Wetland Ui	Owned by Licensee	No. Date Description By Site Plan Revisions (Pre-Licencing)
TP-RC2 1 978	Reforestation Bur Oak (20%) - R	• Expar Unisexu	and and enhance habitat for Jefferson Salamander and kuals.	eedy competition and invasive woody species during establishment stage. bitat features: rock piles (49) and woody debris (49).	This will be a ridge at elevations of 340 mASL to 336 mASL.	320	OS O	N. of Illie	
11-102	1 ' '	sswood (10%) - White Pine (10%) - Other cies (10%)	ite wildlife habitat. • Seed with	n suitable groundcover seed mix. reedy competition and invasive woody species during establishment stage.	This will be a huge at elevations of 340 mixor to 330 mixor.	335 335 335 335	Control Hut TP-RAT	340 Joy Holling	
TP-RC3 1.279	Area Basswood (10%) -	Trembling Aspen (10%) - Balsam Poplar • Create h (10%) - Other suitable native species (10%) • Enhar	e Install hat ance Cox Tract linkage. • Install hat expect the wildlife habitat.	t and mound microtopography. bitat features: rock piles (32) and woody debris (32). n suitable groundcover seed mix. reedy competition and invasive woody species during establishment stage.	This will be a lower-lying area between the 334 and 336 mASL contours. Ground surface will be approximately 1.0 m to 3.0 m above the lake level.	n of Milto	TP-RA6	339	No. Date Description B
TP-RC4 0.078	Area Trembling Aspen (Unisext) - Red Maple (20%) - White Cedar (20%) - 10%) - Balsam Poplar (10%) - Yellow Birch • Create	cuals. and and enhance Significant Woodlands. • Create pit • Install hat	t and mound microtopography. bitat features: rock piles (2) and woody debris (2).	This will be a lower-lying area at or below the 334 mASL contour, near Townline. Ground surface will be approximately 1.0 m	Tow Load (clo	Control Hut		PLANNING
TP-RC5 0.122	Reforestation Bur Oak (20%) - R	. , ,	Control wand and enhance Significant Woodlands. Install hat	n suitable groundcover seed mix. reedy competition and invasive woody species during establishment stage. bitat features: rock piles (3) and woody debris (3). n suitable groundcover seed mix.	above the lake level. This is a small unit near Townline at or above the 336 mASL contour.	IDWIN LINE OH OH OH OH OH OH OH OH OH O	TP-B3 TP-RB4		URBAN DESIGN
TD DOG	suitable native spe	• Enhar • Expar Unisexu	• Control wand and enhance habitat for Jefferson Salamander and kuals.	ready competition and invasive woody species during establishment stage. bitat features: rock piles (11) and woody debris (11).	Southwest-facing slope. Located as close as 50 m from Wetland		₽ TP-RB6		MHBC & LANDSCAPI
		esswood (10%) - White Pine (10%) - Other cices (10%)	te wildlife habitat. • Seed with	bitat features: rock piles (11) and woody debris (11). n suitable groundcover seed mix. reedy competition and invasive woody species during establishment stage.	Southwest-facing slope. Located as close as 50 m from Wetland U1, which is a Jefferson Salamander breeding pool. Contiguous with EEP Unit TP-B2.	TP-RC4	Control Hut Contr		113 COLLIER STREET, BARRIE, ON, L4M 1H2 P: 705.728.0045 F: 705.728.2010 WWW.MHBCPLAN.CC MHBC Stamp Site North
SW1 0.530	Eleocharis spp., So Water-plantain (Ali	cirpus spp. and Schoenoplectus spp.) - • Create and oth a plantago-aquatica) - Common Arrowhead	te habitat for fish, amphibians, turtles, snakes, waterfowl her wildlife. both in shall deep-water		Des, Unit SW1 is the main shoreline wetland unit located at the base of the north-facing slope that contains Unit TP-RC1.	339 2 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	WM VMM VMM TP-RB8	333 01	Brian Zeman Christopher Poole Is authorized by the Ministry of Is authorized by the Ministry of W—E
SW1 0.727	Shallow Wetland Common Cattail (7	Typha latifolia) - Sedges (e.g., Carex spp., ● Create	Install substance new lacustrine wetland area. Grading (sand beaches will be created along the shorelines. omerged and partially submerged rocks/boulders, root masses and logs. coarse and fine) will sculpt an irregular shoreline and produce a variety of slo llow water and above water, and transitioning to nearshore/upland areas and	Des, Unit SW2 is the shallow water area around Islands IS1, IS2 and IS3.	33 ³⁰ TP_RC3	Salamander Excluder		Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 0.2(3)(e) Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 0.2(3)(f) True North
0344	Water-plantain (<i>Ali</i> (<i>Sagittaria latifolia</i>) suitable native wet	isma plantago-aquatica) - Common Arrowhead - Scattered shrubs (mainly Salix spp.) - Other land species	her wildlife. deep-water • Gravel or • Install sub	rareas. sand beaches will be created along the shorelines. comerged and partially submerged rocks/boulders, root masses and logs.	Nes Unit SW2 is the shallowers """	Land Owned by Regional Municipality	339 7		of Ontario Regulation 244/97 to prepare and certify site plans. of Ontario Regulation 244/97 to prepare and certify site plans.
Svv1 0.280	Water-plantain (Ali	cirpus spp. and Schoenoplectus spp.) - isma plantago-aquatica) - Common Arrowhead i - Scattered shrubs (mainly Salix spp.) - Other	te habitat for fish, amphibians, turtles, snakes, waterfowl her wildlife. both in shall deep-water • Gravel or	coarse and fine) will sculpt an irregular shoreline and produce a variety of slo llow water and above water, and transitioning to nearshore/upland areas and rareas. sand beaches will be created along the shorelines. comerged and partially submerged rocks/boulders, root masses and logs.		of Halton and Leased by Licensee Salamander Excluder	Excluder (%) 336 (%) (%) (%) (%) (%) (%) (%) (%) (%) (%)	B ₁	Applicant Christopher Foole 50 000
DW1 1.088	Deep Wetland Pondweeds (Potar.	nogeton spp.) - Common Bladderwort • Create	At the integrated with some a street new lacustrine wetland area. Grading wetland area.	erface with deeper water, create rocky shoals to within 1.0 m of the water sur areas just above water. will produce a variety of slopes and deeper pockets.	Unit DW1 is the main Deep Wetland area that surrounds Islands	Salamander Excluder TP-RC5 TP-RC5	Additional Land		Dufferin Aggregates
	(<i>Utricularia vulgari</i> Fragrant Water-lily	9 11 /	ete habitat for fish, amphibians, turtles, waterfowl and other with some a	erface with deeper water, create rocky shoals to within 1.0 m of the water sur areas just above water. omerged rocks/boulders, root masses and logs.	ace, IS1, IS2 and IS3.	FL FL Control Hut B	Owned by Licensee		A Division of CRH Canada Group Inc. 2300 Steeles Avenue West, 4th Floor Concord, Ontario
DW2 0.035	(<i>Utricularia vulgari</i> Fragrant Water-lily		• Grading wetlend area. • Grading wetle habitat for fish, amphibians, turtles, waterfowl and other end.	will produce a variety of slopes and deeper pockets. omerged rocks/boulders, root masses and logs.	Unit DW2 is a small area of Deep Wetland located in between Islands IS1 and IS2.	335	Market Ma	Site Plan Acronyms	Dufferin Aggregates L4K 5X6
DW3 0.035	aquatic species Deep Wetland Pondweeds (Potar (Utricularia vulgaris	mogeton spp.) - Common Bladderwort s) - Coontail (Ceratophyllum demersum) - • Creato	ete new lacustrine wetland area. • Grading wetland to ther install substitute habitat for fish, amphibians, turtles, waterfowl and other install substitute.	will produce a variety of slopes and deeper pockets. omerged rocks/boulders, root masses and logs.	Unit DW3 is a small area of Deep Wetland located in between Islands IS2 and IS3.	334		 ARA - Aggregate Resource Act NDMNRF - Ministry of Northern Development, Mines, Natural Resources and Forestry 	Project Milton Quarry East Extension
IS1 0.114	(Lemna minor) - Śi aquatic species	(Nymphaea odorata) - Common Duckweed tonewort (Chara sp.) - Other suitable native wildlife. chizachyrium scoparium) (40%) - Switchgrass	te island habitat that will provide habitat for nesting	d will be capped with various granular substrates (gravels and coarse sands)	as The islands are oriented towards the prevailing wind from the			 MHSTCI - Ministry of Heritage, Sport, Tourism and Culture Industries MGCS - Ministry of Government and Consumer Services 	10305 Nassagaweya Esquesing Townline, Halton Hills, Ontario
0.114	(Panicum virgatum	v) (20%) - Big Bluestem (Andropogon gerardii) waterfo ative wildflower species (20%) waterfo	owl, shorebirds and turtles. low water between and around islands will provide red nursery habitat for fish. well as pate • Placemer • At least 3	d will be capped with various granular substrates (gravels and coarse sands) ches of boulders and cobbles. It of at least 10 logs and/or stumps/root wads. turtle nesting sites will be constructed on the island well above the high-wate ble granular material. Dimensions of turtle nesting areas will be approximately	west and northwest, with sheltered coves on the leeward side. Shallow Wetland and Deep Wetland areas are associated with the islands.	Main Quarry	* 1 " tolk in the second of th	 5. MECP - Ministry of the Environment, Conservation and Parks 6. AMP - Adaptive Environmental Management and Protection Plan 	NDMNRF Licence Reference No. Applicant's Signature
IS2 0.123	(Panicum virgatum	shizachyrium scoparium) (40%) - Switchgrass b) (20%) - Big Bluestem (Andropogon gerardii) waterfo	m by 4-5 m te island habitat that will provide habitat for nesting owl, shorebirds and turtles. • The island well as pate	and the nesting areas will be oriented to provide south and/or southwest exp d will be capped with various granular substrates (gravels and coarse sands) ches of boulders and cobbles.	as The islands are oriented towards the prevailing wind from the west and northwest, with sheltered coves on the leeward side.	11 to of Milltor (Licence #5481)		 7. ANSI - Area of Natural and Scientific Interest 8. ESA - Environmentally Sensitive Area 	Plan Scale: 1:2000 (Arch E) Date December 2021
	, ,	sheltere	red nursery habitat for fish. • At least 3 using suitat m by 4-5 m	nt of at least 10 logs and/or stumps/root wads. turtle nesting sites will be constructed on the island well above the high-wate ble granular material. Dimensions of turtle nesting areas will be approximately and the nesting areas will be oriented to provide south and/or southwest exp	8-10	Wetland W36		9. OWRA - Ontario Water Resources Act10. MQEE - Milton Quarry East Extension	Drawn By C.P. File No.
IS3 0.150	(Panicum virgatum	. , ,	owl, shorebirds and turtles. low water between and around islands will provide red nursery habitat for fish. well as pate • Placemer • At least 3	d will be capped with various granular substrates (gravels and coarse sands) ches of boulders and cobbles. In of at least 10 logs and/or stumps/root wads. It turtle nesting sites will be constructed on the island well above the high-water.	west and northwest, with sheltered coves on the leeward side. Shallow Wetland and Deep Wetland areas are associated with the islands.	331		11. EEP - Ecological Enhancement Plan12. WMS - Water Management System	File Name Ecological Enhancement Plan
Total 8.015 ha			using suital m by 4-5 m	ble granular material. Dimensions of turtle nesting areas will be approximately and the nesting areas will be oriented to provide south and/or southwest exp	8-10	329 34k		13. MASL - Metres above mean sea level14. PTTW - Permit to Take Water	Drawing No.
¹ Rehabilitation Plan Un	t Codes: TP-RC - Tree-planting/Refore	station SW - Shallow Wetland DW - Deep W	Vetland IS - Island			THE			File Path N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plant
									December 2021.dwg

