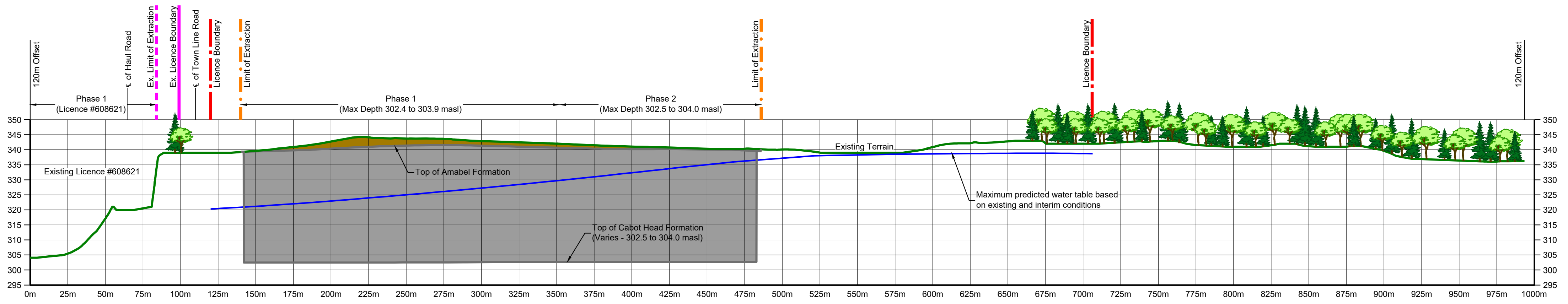

Section A-A1

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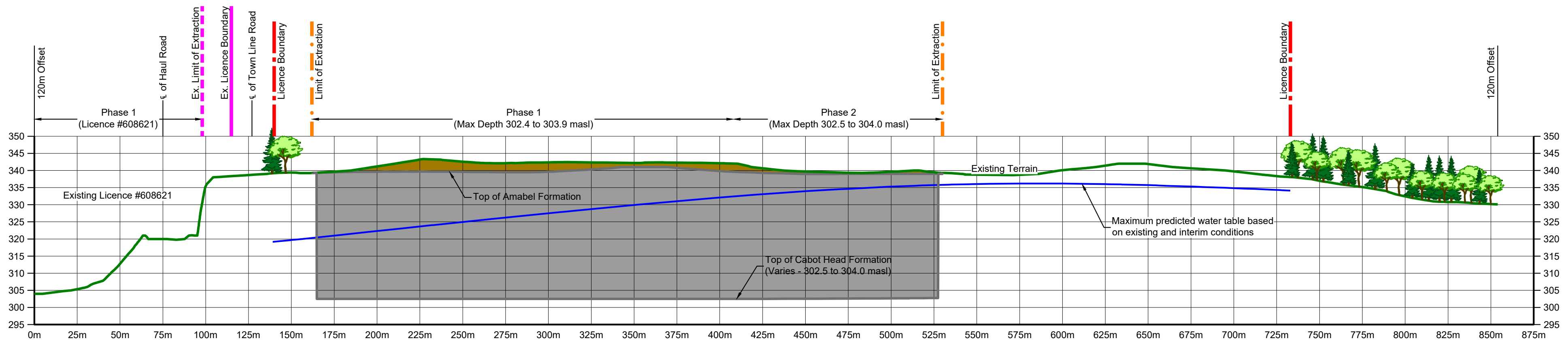

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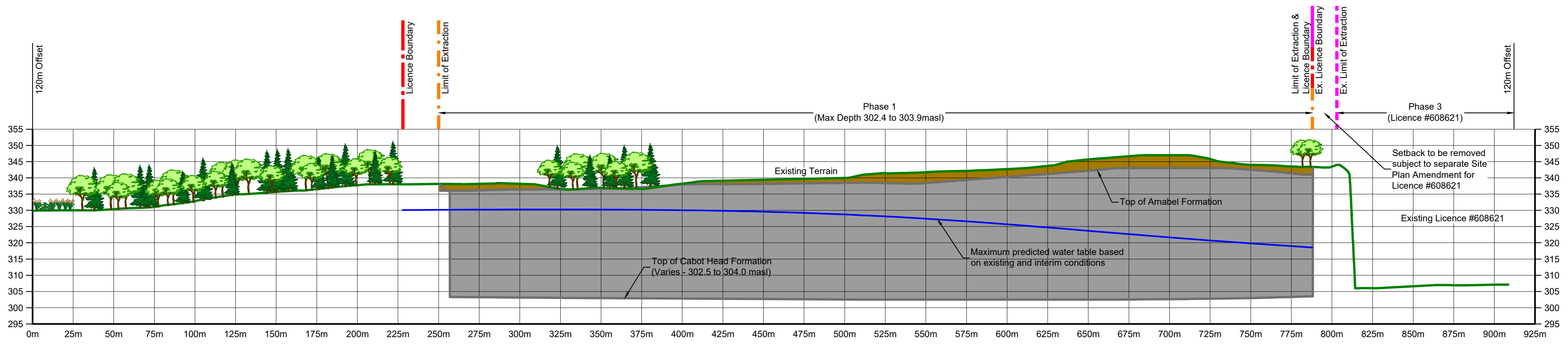

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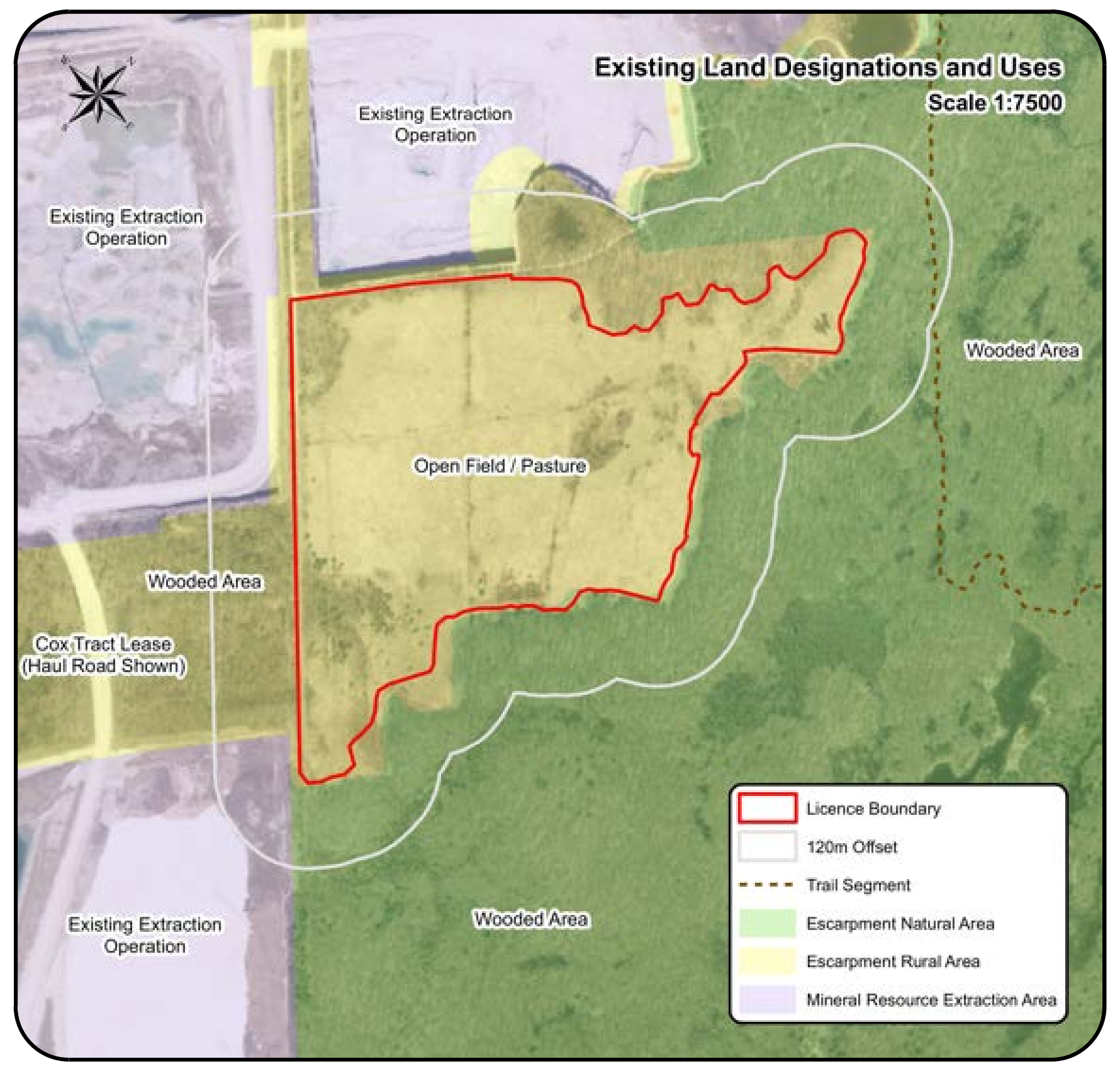
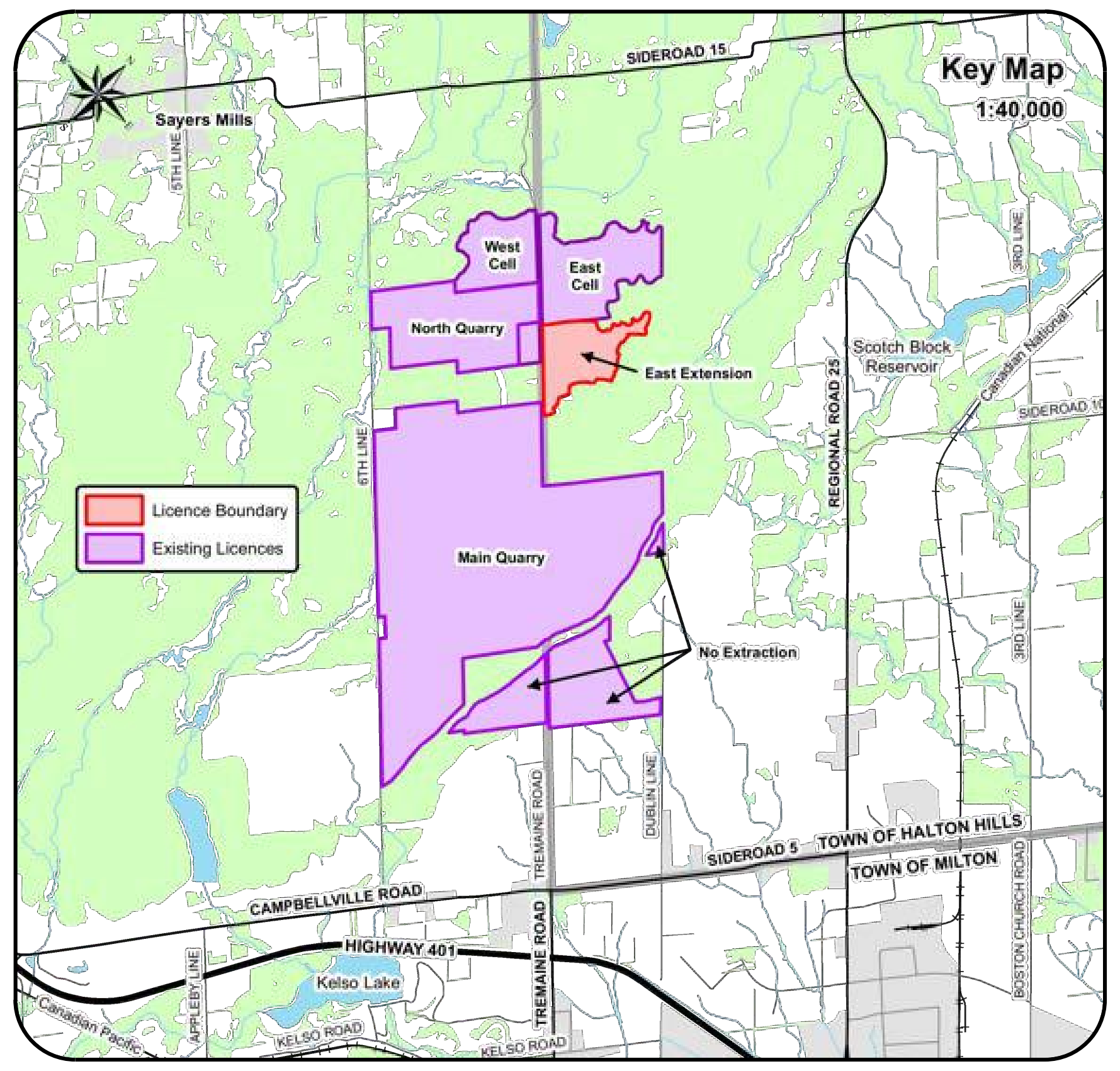




Site Plan Acronyms

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
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

General Notes:

Numbering scheme used for general and existing features notes refers to Aggregate Resources of Ontario Site Plan Standards.

1. A key map identifying the location of the licence is provided on the plan view of this drawing.
2. The general description of the geographic location of the site is provided in the titleblock on each drawing.
3. All topographic features are shown to scale in Universal Transverse Mercator (UTM) with North American Datum 1927 (NAD27), Zone 17 (metre), Central Meridian 81 degrees west coordinate system. Northing and easting coordinates for select corners and where an entrance/exit intersects the licence boundary have been identified on the plan view.
4. The plan view on each drawing is at a scale of 1:2000 unless otherwise specified.
5. The applicant's contact information and signature is contained in the titleblock on each drawing.
6. Not applicable since it only applies to wayside permits.
7. The name and signature of the individual who prepared the site plan is located in the titleblock on each drawing.
8. This site plan is prepared under the Aggregate Resources Act (ARA) for a Class 'A' Licence for a quarry below the ground water table.
9. All references to north, south, east and west are based on site north (not true north).
10. The schedule for site plan amendments is contained in the titleblock for each drawing.
11. See titleblock for legend.
12. The licence boundary of the site including bearings (where applicable), dimensions and northing and easting coordinates are identified on the plan view of this drawing.
13. Area Calculations:

Licence boundary	30.2 ha
Limit of extraction	15.9 ha

14. Lot and concession lines are displayed and labelled on the plan view for each drawing.

Existing Features Notes:

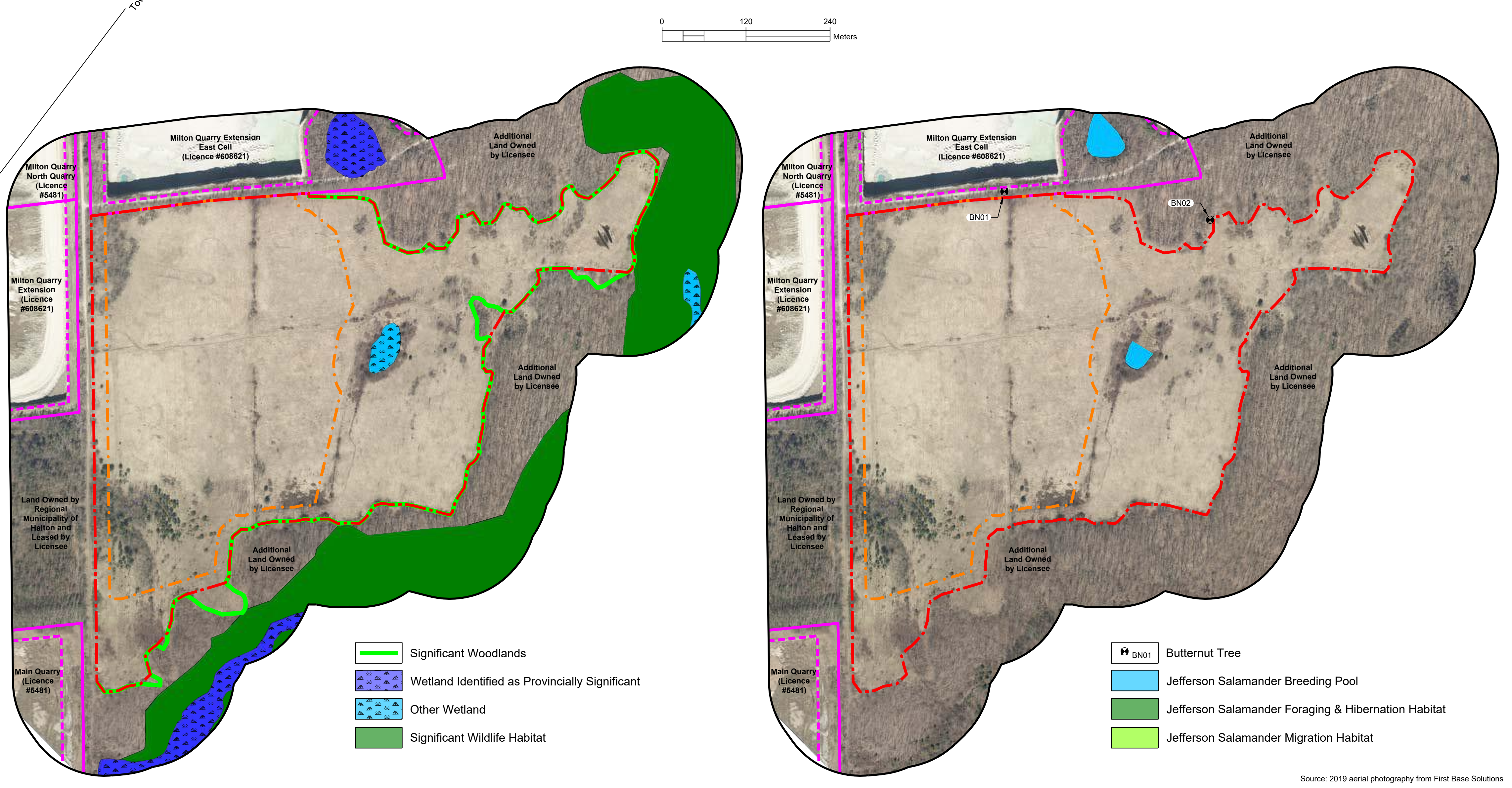
15. The following sources were utilized in preparation of this site plan:
    a. General References
        a.a. Topographic information (excluding contours - see Note 23 on this drawing) was obtained from numerous sources including Ontario GeoHub (Land Information Ontario), Northway Photomap Inc. aerial photography captured in the spring of 1997, Google Earth Pro aerial photography captured on May 7, 2018 and field investigations for technical reports.
        a.b. The licence boundary was established using a Sketch prepared by Fred G. Cunningham - Ontario Land Surveyor, dated December 2, 1997 and the significant woodland boundary provided by Goodban Ecological Consulting Inc. (GEC) dated March 23, 2021. Distances between northings and eastings are approximate and for reference purposes only.
        a.c. Land use designations on and within 120 metres of the licence boundary are from the Niagara Escarpment Plan, Map 3 - Regional Municipality of Halton, approved June 1, 2017. All land within the licence boundary is designated Escarpment Rural Area. Municipal zoning in this area does not apply.
        a.d. Land use information identified on or within 120 metres of the licence boundary was determined using Google Earth Pro aerial photography captured on May 7, 2018.
    b. Technical Report References
        b.a. Agricultural Impact Assessment, Milton Quarry East Extension, DBH Soil Services Inc., November 4, 2021.
        b.b. Milton Quarry East Extension Noise Impact Study, Aercoustics Engineering Ltd., December 7, 2021.
        b.c. Milton Quarry East Extension Agricultural Impact Assessment, DBH Soil Services Inc., November 4, 2021.
        b.d. Dufferin Milton Quarry East Extension Air Quality Assessment, RWDI, November 16, 2021.
        b.e. Stage 1 and 2 Archaeological Assessment Milton Quarry East Extension, Golder Associates Ltd., April 30, 2021.
        b.f. Stage 3 Archaeological Stage 3 Archaeological Assessment Location 2 (AjGx-306), Milton Quarry East Extension, Golder Associates Ltd., April 30, 2021.
        b.g. Blast Impact Analysis Milton Quarry East Extension, Explotech, November 25, 2021.
        b.h. Cultural Heritage Impact Assessment Report Milton Quarry East Extension, MHBC, December 2021.
        b.i. Milton Quarry East Extension Fiscal Impact Study, Altus Group Economic Consulting, November 15, 2021.
        b.j. Geology and Water Resources Assessment Report Dufferin Aggregates Milton Quarry East Extension, GHD, December 2021.
        b.k. Addendum to Updated Adaptive Environmental Management and Protection Plan (AMP) Milton Quarry East Extension, GHD and Goodban Ecological Consulting Inc. (GEC), December 2021.
        b.l. Level 1 And 2 Natural Environment Technical Report (NETR) and Environmental Impact Assessment (EIA) Dufferin Aggregates Milton Quarry East Extension, Goodban Ecological Consulting Inc. (GEC), December 2021.
        b.m. Ecological Enhancement Plan (EEP) & Rehabilitation Plan Report, Dufferin Aggregates Milton Quarry East Extension, Goodban Ecological Consulting Inc. (GEC), December 2021.
        b.n. Traffic Impact Study/ Haul Route Assessment Dufferin Aggregates Milton Quarry East Extension, The Municipal Infrastructure Group Ltd. (TMIG), October 2021.
        b.o. Visual Impact Assessment Proposed Extension of the Milton Quarry, MHBC, November 2021.
        b.p. Progressive and Final Rehabilitation and Monitoring Study, Dufferin Aggregates Milton Quarry East Extension, MHBC, December 2021.
16. Municipal zoning on and within 120 metres of the licence boundary does not apply (see Note 15.a.c. on this drawing).
17. Existing land designations and uses are provided on this drawing.
18. The maximum predicted water table (based on existing and interim conditions) within the limit of extraction varies between 315.1 and 336.8 metres above mean sea level (see plan view on drawing 2 of 4 for location).
19. A field access exists in the location shown on the plan view.
20. All significant natural features on and within 120 metres of the licence boundary are shown on the Key Natural Heritage Schematic on this drawing.
21. All significant human-made features on and within 120 metres of the licence boundary are shown on the plan view.
22. There buildings and structures associated with the water mitigation system (eg. control huts) within 120 metres of the licence boundary.
23. Contours were obtained from the Region of Halton's Open Data Catalogue which were derived from 2019 aerial photography and are displayed in one metre intervals. Elevations shown are in metres above mean sea level (masl).
24. 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.
25. The location of existing tree cover on and within 120 metres of the licence boundary is shown on the plan view.
26. Post and wire fencing (unless noted otherwise) exists in the locations shown on the plan view.

Aggregate Resources of Ontario Site Plan Standards notes 27 to 32:

There are no existing aggregate operations or features on-site such as processing areas with stationary or portable equipment, stockpiles, recyclable materials, scrap, haul roads, fuel storage, berms or excavation faces.

Key Natural Heritage Features Schematic

Scale 1:4000



Source: 2019 aerial photography from First Base Solutions

Legal Description

Part of Lots 11 and 12, Concession 1
(former geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

- Licence Boundary
- Limit of Extraction
- Contours with Elevation — Metres above sea level (MASL)
- Road
- Field Access
- Excavation Face
- Disturbed Area
- Wooded Area
- Wetland — Boundaries Delineated by GEC
- ♦ Control Hut
- Existing Licence Boundary
- Existing Limit of Extraction
- 120m Offset From Licence Boundary
- Lots and Concessions
- Trail Segment
- Overhead Hydro (OH)
- Existing Watermain (EWM)
- Fence — Existing 1.2m post & wire fence unless otherwise noted
- ⇔ Entrance / Exit — Field Entrance
- ⇨ Direction of Surface Drainage
- A1 Cross Sections

Legend - Cross Sections

- Licence Boundary
- Limit of Extraction
- Existing Licence Boundary
- Existing Limit of Extraction
- Existing Grade
- Maximum Predicted Water Table — Based on existing and interim conditions
- Maximum Depth of Excavation
- Topsoil and/or Overburden
- Aggregate Available for Extraction

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1	January 2022	Update Operational Plan per feedback from NDMNRF	CAP

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

MHBC Stamp

Brian Zeman

Is authorized by the Ministry of Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 0.2(3)(e) of Ontario Regulation 244/97 to prepare and certify site plans.

Brian Zeman

MHBC Stamp

Christopher Poole

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

Christopher Poole

Site North

N W E S

True North

W N S E

Applicant

Dufferin Aggregates A CRH COMPANY

Dufferin Aggregates
A Division of CRH Canada Group Inc.
2300 Steeles Avenue West, 4th Floor
Concord, Ontario
L4K 5X6

Project *Milton Quarry East Extension*

10305 Nassagaweya Esquesing Townline, Halton Hills, Ontario

NDMNRF Licence Reference No.

Applicant's Signature

Plan Scale: 1:2000 (Arch E)

0 60 120 Meters

Date December 2021

Drawn By C.P.

Checked By B.Z.

File No. 9061DJ

File Name Existing Features & Cross Sections

Drawing No. 1 of 4

File Path N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plan - January 2022.dwg

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 separated where appropriate as:

    - Organics and topsoils (for final dressing to promote regeneration);
    - Non-structural fill; and
    - Structural material

    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 exceed Ministry of Labour requirements.

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.

    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.

47. 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 provided.

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
    - Water and fuel trucks
    - Tree clearing equipment
    - Maintenance trucks
    - Highway trucks
    - Pickup trucks

    Drilling, extraction and transport

    - 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:

• Extraction & processing	Monday to Sunday, 24 hours per day
• Loading and shipping	Monday to Sunday, 24 hours per day
• Maintenance	Monday to Sunday, 24 hours per day
• Site preparation & rehabilitation	Monday to Sunday between 7:00 a.m. and 7:00 p.m.
• Drilling	Monday to Sunday between 7:00 a.m. and 7:00 p.m.
• Blasting	Monday to Friday between 8:00 a.m. and 6:00 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 E.9 for additional information).

54. Variations from Control and Operation Standards

Section 0.13 Standard	Variation	Rationale
(1)1 & (1)2	Gates shall not be required where haul road(s) cross the common boundary with Licence #608621.	This will eliminate constraints to the movement of equipment between licences owned by the same licensee.
(1) 9 & 11	Excavation shall occur in the setback area to install the water mitigation system.	Water mitigation system is required to be built below the frost line.
(1)10.i	A 0 metre setback shall be provided where the licence abuts existing Licence #608621.	This will enable material to be extracted along the common boundary and for rehabilitation to transition between licences. A site plan amendment for existing Licence #608621 is required.
(1)10.iii	A 20 metre setback shall be provided along the western boundary adjacent to the road allowance which is closed to public access.	This will be consistent with Licence #608621 to the north which has a 20 metre setback along the western boundary adjacent to the road allowance which is closed to public access.
(1)13.i	Aggregate, topsoil and overburden stockpiles may be located within 30 metres of the licence boundary.	The licensee owns the land to the north, east and south while Town Line Road to the west is closed to public access.
(1)17 & 1(18)	Topsoil and overburden may be transferred to existing Licence #5481 and/or Licence #608621.	This will allow stripped material from site preparation to be used immediately for progressive rehabilitation or for overburden to be used in ramp construction in other parts of the existing licences.
(1) 19	Portions of the quarry faces shall remain vertical. See drawings 3 of 4 and 4 of 4.	To allow movement of groundwater from the lakes towards off site features and to create a more diversified habitat and visually interesting rehabilitated landform.
(3)(A)	Portions of the licence boundary shall not be fenced.	The licence boundary shall be demarcated every 30 metres where required. See Operational Note 36 for additional information.

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 holidays.

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

Technical Report Recommendations

A. Air Quality

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.

B. Archaeology

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. Blasting

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 standard.
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 return the operations to compliant levels.
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.
5. 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.
7. Detailed blast records shall be maintained in accordance with current industry best practices.

D. Geology and Water Resource

1. Implement and operate the proposed water management system mitigation and rehabilitation measures, including any necessary response actions, in accordance with the Adaptive Environmental Management and Protection Plan (AMP) Addendum.
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 approvals.
4. Extend the implementation of the Milton Quarry Contingency and Pollution Prevention Plan to include the Milton Quarry East Extension (MQEE).

E. Natural Environment

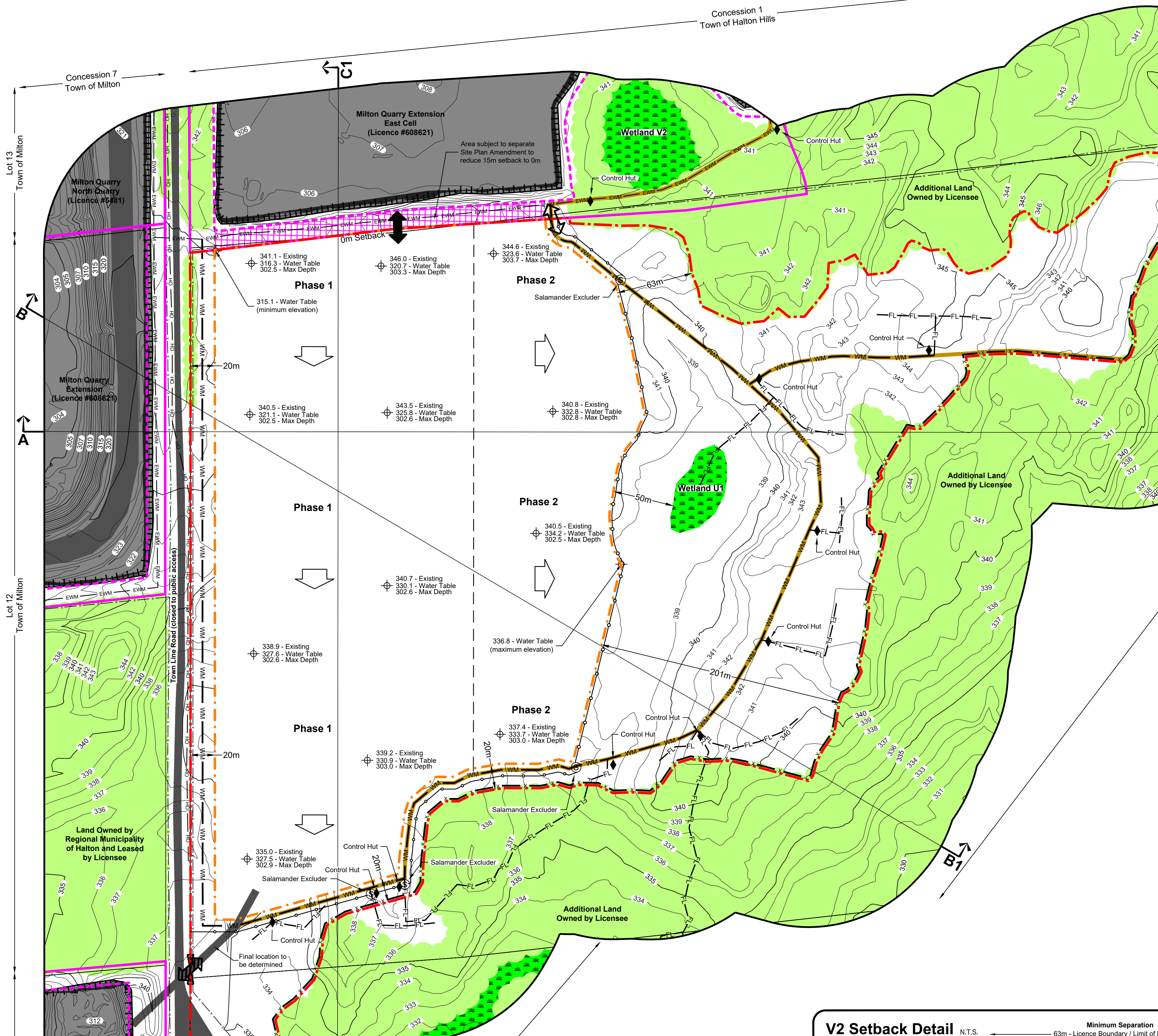
1. No development is permitted within the habitat of Jefferson Salamander and Unisexual Ambystoma (Jefferson Salamander dependent population) unless authorized by an Endangered Species Act (ESA) Permit or other authorization from the Ministry of Environment, Conservation and Parks (MECP). A copy of the 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 necessary.
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.
7. 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 already been removed.
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 the Ecological Enhancement Plan (EEP), diffuse discharges, and future quarry rehabilitation.
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 to the extent feasible.
        b.b. Quarry equipment (such as trucks and loaders) shall not be operated within 25 metres of a nest between April 15th to July 31st.
        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 millimetres per second and overpressure shall not exceed 140 dB. Despite these blasting limits, the Licensee shall also ensure that Provincial limits for overpressure as outlined in NPC-119 are not exceeded at surrounding sensitive receptors.
    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.

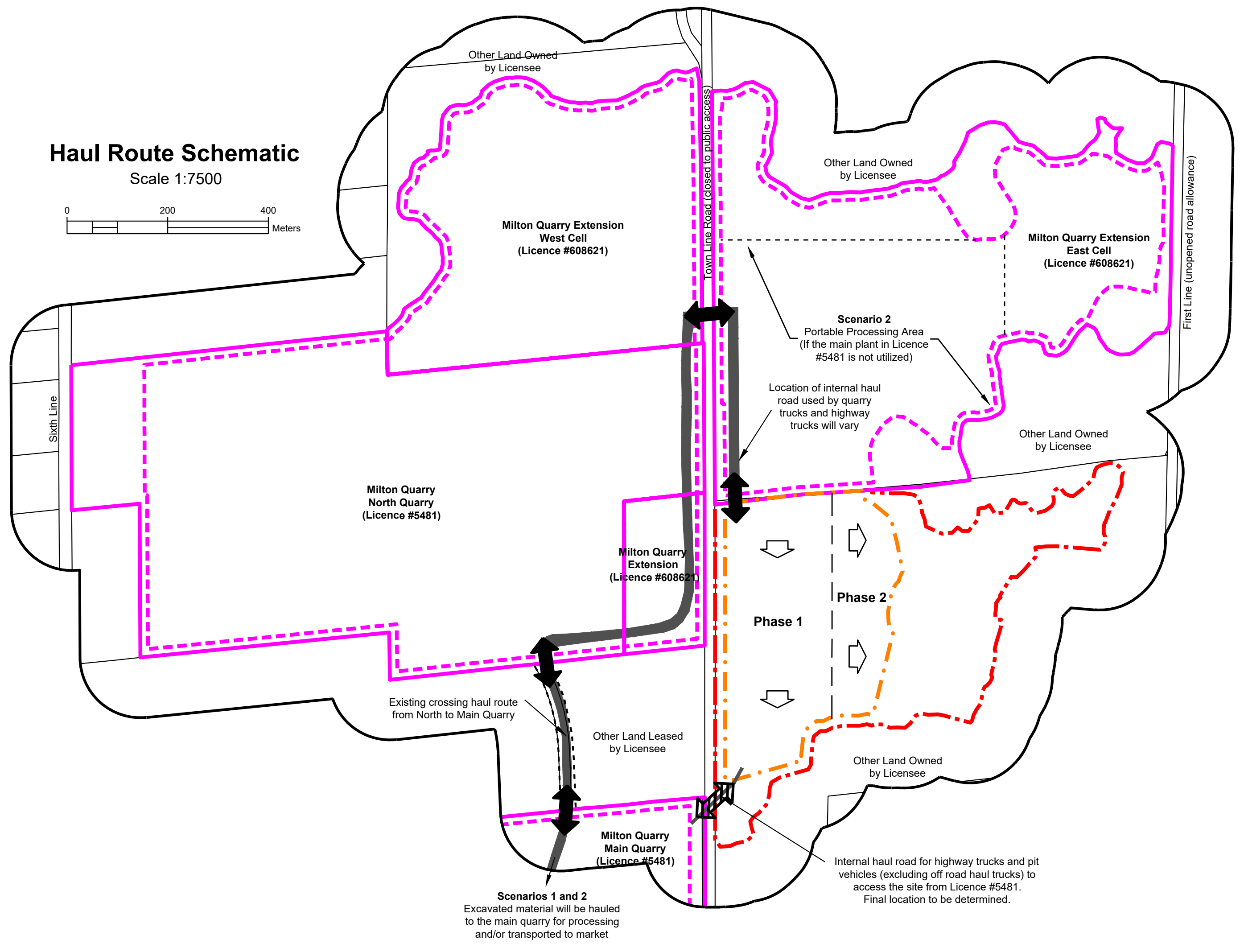
Equipment	Reference Sound Pressure Level at 30m (dBA)
Rock Drill	85
Extraction Loader	76
Excavator	70
Off-Road Truck	74

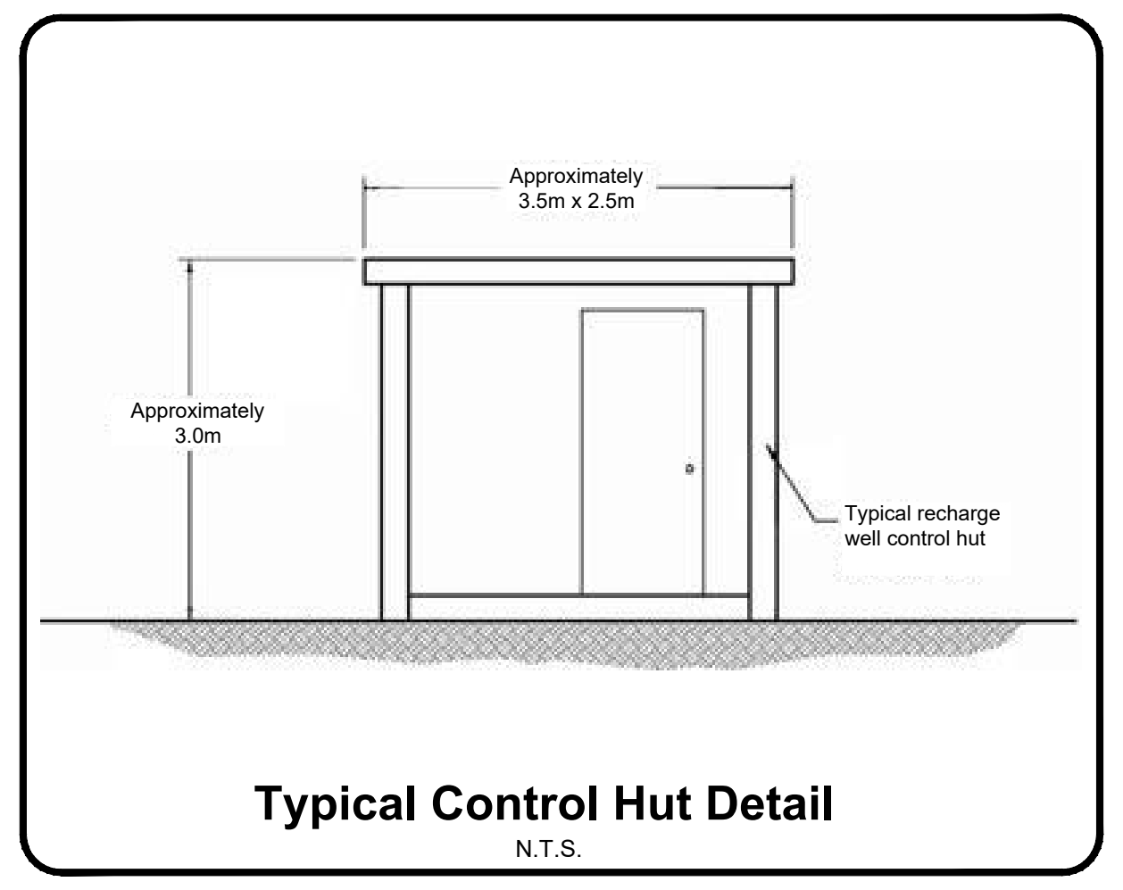
2. New equipment technology or different configurations may allow proposed changes to any portion of the extraction and processing operations including additional equipment to operate on the site, equipment to be substituted, and/or different berm heights, while still meeting the applicable sound level 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).
4. 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".
6. Noise controls for Scenario 1
    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)
    b. Phase 1
        b.a. Drilling in the Phase 1 "restricted drilling area" indicated on the operational plan is limited to two (2) rock drills 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 block line of sight between any drills and R17.
    c. Phase 2
        c.a. No additional Noise Controls.
7. 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
        - One (1) Excavator
        - 32 Off-Road truck trips per hour (64 passes per hour)
    b. Phases 1 and 2
        b.a. No additional Noise Controls.



Haul Route Schematic

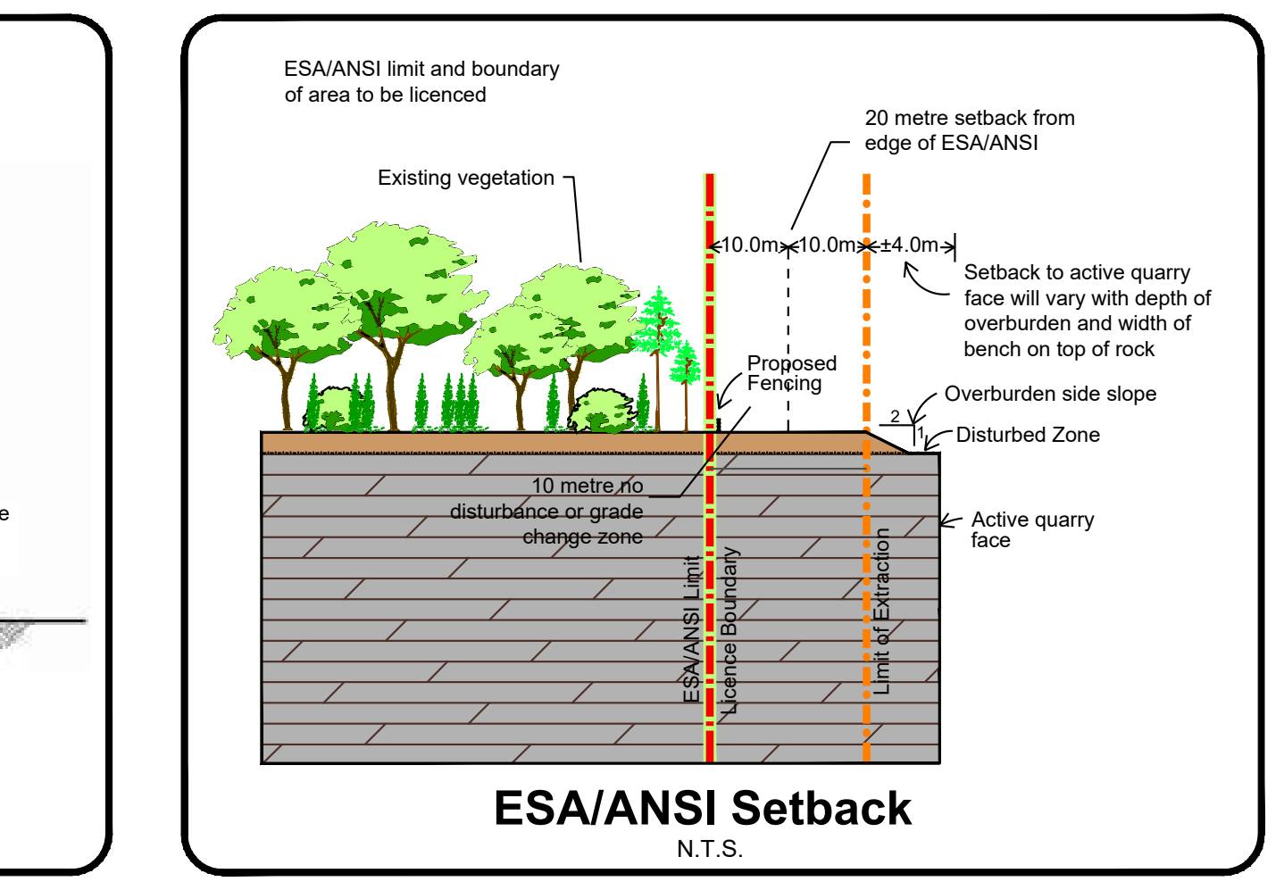
Scale 1:7500





Typical Control Hut Detail

N.T.S.

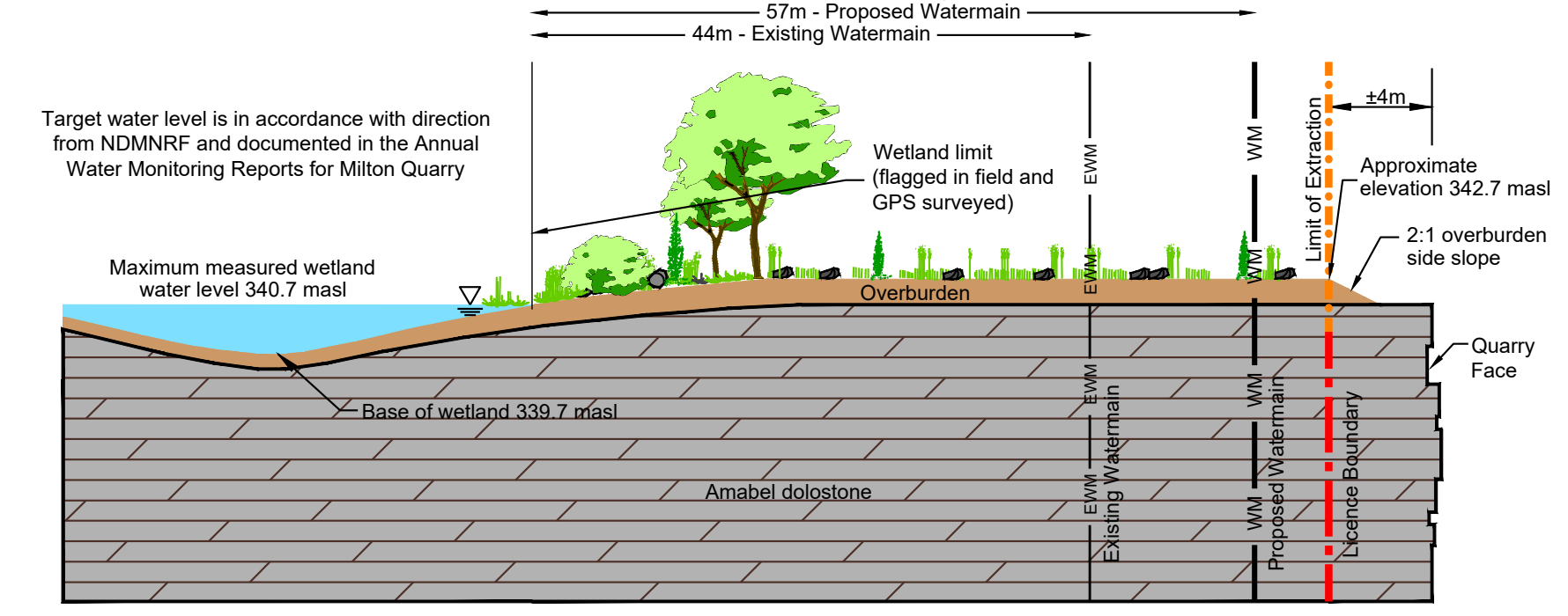


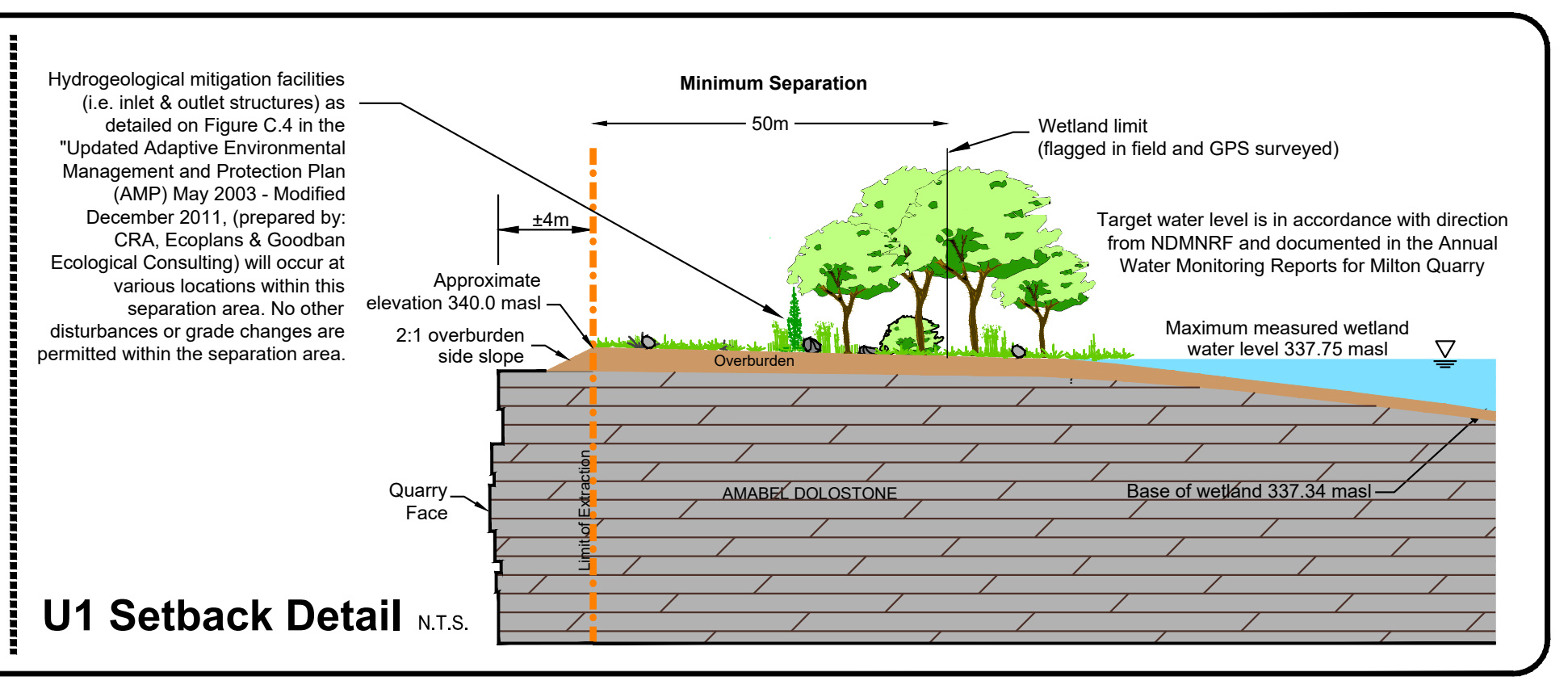
ESA/ANSI Setback

N.T.S.

V2 Setback Detail

N.T.S.



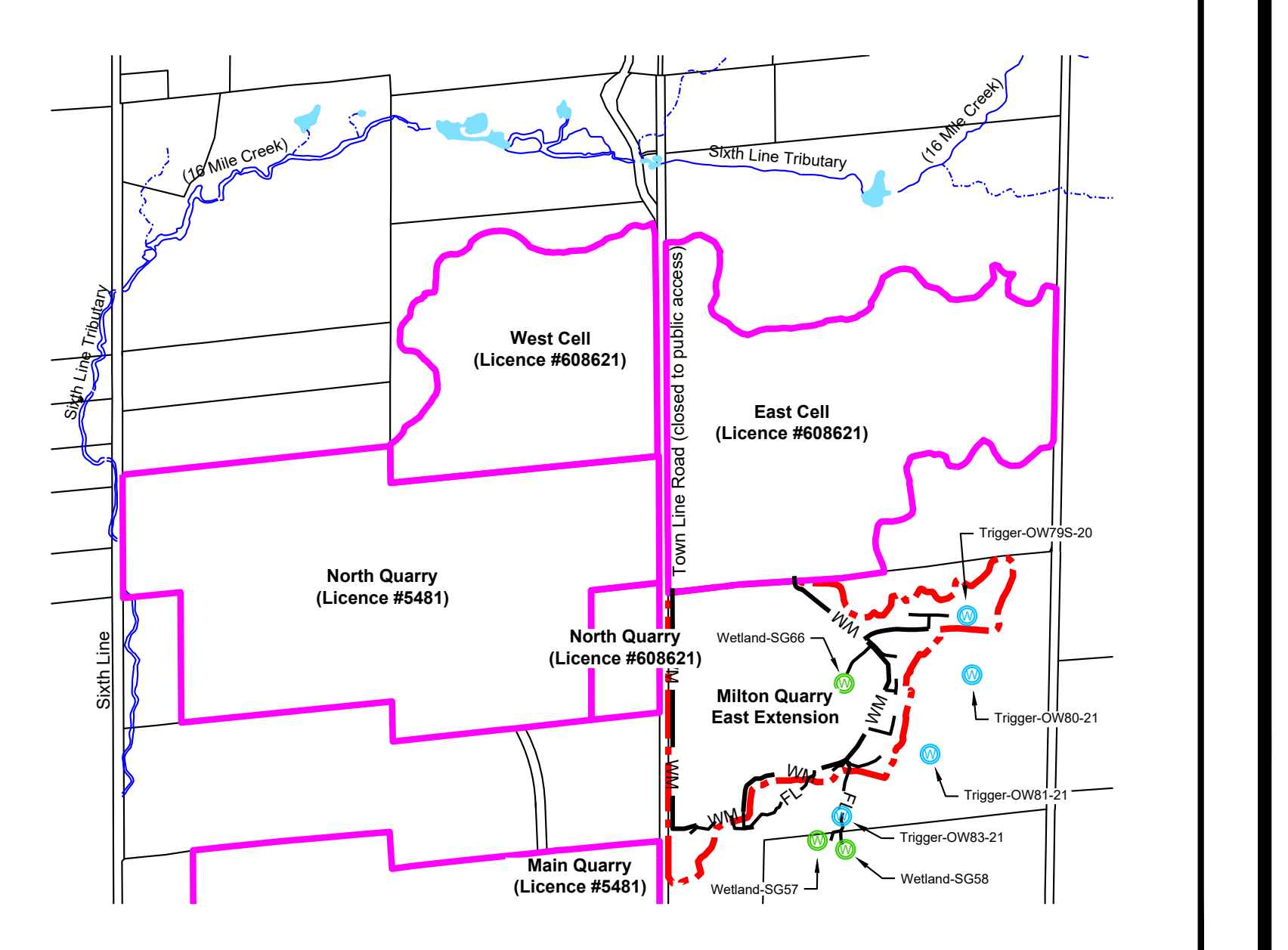


U1 Setback Detail

N.T.S.

1. Recharge well locations are not specifically shown but will generally be located in proximity to the hydrogeological mitigation facilities alignment. The recharge wells may be located within the ESA/ANSI setback or beyond in the ESA/ANSI where deemed acceptable by the Ecologists in consultation with the appropriate agencies.
2. Exact location of wells located outside the licenced boundary, connecting pipes crossing setback areas (max. construction or maintenance disturbance area of 5 metres wide, subsequent access limited to narrow trail) and any associated facilities to be determined in field in consultation with Ecologist and Hydrogeologist in order to minimize any impacts on the ESA/ANSI.
3. Monitoring locations may include automated recording equipment and associated facilities.
4. Following installation of the mitigation facilities, service access in the setbacks adjacent to Wetlands V2 & U1 will not be used by heavy quarry traffic.

— WM —	Hydrogeological Mitigation Facilities (Main Watermain)
—FL—	Hydrogeological Mitigation Facilities (Feeder Line)
Ⓦ	Trigger Well Target Water Level Locations (conceptual)
Ⓦ	Wetland Target Water Level Locations (conceptual)



Hydrogeologic Monitoring and Mitigation Systems

N.T.S.

Legal Description

Part of Lots 11 and 12, Concession 1
(former geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

🟥	Licence Boundary	🟪	Existing Licence Boundary
🟧	Limit of Extraction	🟪	Existing Limit of Extraction
149 150 151	Contours with Elevation Metres above sea level (MASL)		120m Offset From Licence Boundary
	Road		Lots and Concessions
	Service Access Road		Trail Segment
	Extraction Face	OH	Overhead Hydro
	Disturbed Area		Silt / Exclusion Fencing
	Wooded Area	EWM	Existing Watermain
	Wetland Boundaries Delineated by GEC	WM	Main Watermain
⬌	Operational Access Unrestricted	FL	Feeder Line
⬌	Operational Access Limited - No Off Road Haul Trucks	x	Fence 1.2m post & wire fence unless otherwise noted Existing - Thin | Proposed - Bold
⇔	Field Entrance / Exit		General Direction of Excavation & Boundary
	Gate	150.0 142.0 130.0	Spot Elevation Top - Existing (MASL) / Middle - Water Table (MASL) Bottom - Maximum Depth of Extraction (MASL)
Ⓢ	Salamander Excluder Location	A1	Cross Sections
♦	Control Hut		

Site Plan Acronyms

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
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

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1	January 2022	Update Natural Environmental note E.12.b.c. per feedback from NDMNRF	CAP

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

113 COLLIER STREET, BARRIE, ON, L4M 1H2 | P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

MHBC Stamp

Brian Zeman

Is authorized by the Ministry of Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 0.2(3)(e) of Ontario Regulation 244/97 to prepare and certify site plans.

Brian Zeman

MHBC Stamp

Christopher Poole

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

Christopher Poole

Site North

N W E S

True North

Applicant

Dufferin Aggregates
A CRH COMPANY

Dufferin Aggregates
A Division of CRH Canada Group Inc.
2300 Steeles Avenue West, 4th Floor
Concord, Ontario
L4K 5X6

Project *Milton Quarry East Extension*

10305 Nassagaweya Esquesing Townline, Halton Hills, Ontario

NDMNRF Licence Reference No.

Applicant's Signature

Plan Scale: 1:2000 (Arch E)

0 60 120 Meters

Date December 2021

Drawn By C.P.

Checked By B.Z.

File No. 9061DJ

File Name Operational Plan

Drawing No. 2 of 4

File Path N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plan - January 2022.dwg

Table 1: Milton Quarry East Extension - Ecological Enhancement Plan (EEP) Unit Summary

Unit[1]	Area (ha)	Site Conditions	Woody Species Planting List	Year(s)	Purpose	Other Management Activities	Notes
DA1	0.062	Disturbed area. Small excavation that contains water briefly in the spring. Formerly used as a "mud run" for off-road trucks and ATVs.	Not applicable.	1-3	• Restore previously disturbed area. • Raise grade to avoid attracting mole salamanders during breeding season. • Create potential snake hibernacula.	• Use fill materials that will serve to create several potential snake hibernacula (e.g., mix of earth, rock rubble and woody debris). • Cap the new feature with weathered rocks.	Restoring Unit DA1 by filling the old excavation and creating several snake hibernacula will serve to: • 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. Complete this work in conjunction with nearby WMS installation work.
TP-B1	0.178	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock piles, shrub thicket and White Ash regeneration.	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	1-2	• Buffer to Unit TP-RA1 and Significant Woodland. • Expand and enhance Significant Woodlands. • Enhance potential migration and dispersal habitat for Jefferson Salamander and Unisexuals.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration.	Narrow buffer strip beside the watermain alignment. This outer edge of this unit comes within 10 m of the extraction limit.
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%)	1-2	• 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.
TP-B3	0.302	Old Field Meadow, with old fenceline with rock piles. Mostly not ploughed in late 2020 (CUM1-1a).	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	1-2	• Buffer to Units TP-RB4, TP-RB5 and WE1. 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.
TP-B4	0.244	Old Field Meadow (Unit CUM1-1a) and Cultural Savannah (CUS1).	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	1-2	• 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.
TP-B5	0.055	Old Field Meadow (Unit CUM1-1a) and Cultural Savannah (CUS1).	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	1-2	• Buffer to Significant Woodland. • Expand and enhance Significant Woodlands. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration).	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 WMS feeder lines in this vicinity.
TP-6	0.131	Old Field Meadow (Unit CUM1-1a) and Cultural Savannah (CUS1).	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	1-2	• Buffer to Significant Woodland. • Expand and enhance Significant Woodlands. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration).	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 WMS feeder lines in this vicinity.
TP-M1	0.981	Old Field Meadow: Mostly ploughed in late 2020 (CUM1-1b). Poplar woods (FOD3-1). Shrub thicket (CUT1). Some dolostone outcrops.	Sugar Maple (30%) - White Birch (30%) - Basswood (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration; remove defective stems. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Interplant shade-tolerant species such as Sugar Maple in thinned out poplar-ash patches. • Install habitat features: rock piles (25) and woody debris (25). • Clean up old farm junk piles.	Fairly large patch of old field with early successional patches of shrubs, Trembling Aspen and White Ash. Tree-planting in Unit TP-M1 will contribute to reforesting an open gap between two areas of mature forest, along with Units TP-M2, TP-RB1, TP-RB2 and TP-RB3.
TP-M2	0.646	Old Field Meadow (Unit CUM1-1a), Staghorn Sumac Shrub Thicket (CUT1-1) with cluster of mature trees.	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration; remove defective stems. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Interplant shade-tolerant species such as Sugar Maple in thinned out poplar-ash patches. • Install habitat features: rock piles (16) and woody debris (16). • Clean up old farm junk piles.	Varied patch with old field, shrub thickets, clusters of open-grown 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 areas of mature forest, along with Units TP-M1, TP-RB1, TP-RB2 and TP-RB3.
TP-RA1	0.286	Old Field Meadow (Unit CUM1-1a) with small cluster of Common Buckthorn and hawthorns.	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) -- Other suitable native species (10%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (7) and woody debris (7).	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.
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%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (8) and woody debris (8).	Unit TP-RA2 is approximately 120 m away from Wetland V2 and 70 m away from 70 m. 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.
TP-RA3	0.244	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%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (6) and woody debris (6).	Unit TP-RA3 is 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.
TP-RA4	1.138	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) -- Other suitable native species (10%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (28) and woody debris (28).	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 between Wetland U1 and the Significant Woodland.
TP-RA5	0.174	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%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (4) and woody debris (4).	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.
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%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (8) and woody debris (8).	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.
TP-RA7	0.406	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	1-3	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (10) and woody debris (10).	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 connection between Wetland U1 and the Significant Woodland.
TP-RB1	0.311	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (8) and woody debris (8). • Clean up old farm junk.	Tree-planting in Unit TP-RB1 will contribute to reforesting an open gap between two areas of mature forest, along with Units TP-M1, TP-M2, TP-RB2 and TP-RB3.
TP-RB2	0.155	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) -Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (4) and woody debris (4). • Clean up old farm junk.	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.
TP-RB3	1.109	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Sugar Maple (30%) - White Birch (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (28) and woody debris (28).	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.
TP-RB4	0.312	Old Field Meadow. A portion was ploughed in late 2020 (CUM1-1b) but the rest was not (CUM1-1a). A small dry ditch runs through this unit.	Silver Maple (25%) - White Cedar (25%) - Trembling Aspen (15%) - Balsam Poplar (15%) - Basswood (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (8) and woody debris (8). • Install erosion control features (e.g., rip-rap) along ditch line, as necessary.	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 selected are facultative species that can tolerate some inundation (except Basswood).
TP-RB5	0.700	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). A small portion was not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) -- Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (18) and woody debris (18).	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.
TP-RB6	0.420	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). A small portion was not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	Red Oak (30%) - Bur Oak (15%) - Sugar Maple (15%) - White Pine (20%) -Basswood (10%) -- Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (11) and woody debris (11).	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.
TP-RB7	0.377	Old Field Meadow. Mostly ploughed in late 2020 (CUM1-1b). Some portions not ploughed (CUM1-1a), with some rock outcrops and rock piles, scattered shrub patches and trees.	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (9) and woody debris (9).	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 Significant Woodland.
TP-RB8	0.168	Old Field Meadow, mostly not ploughed (CUM1-1a), with some rock outcrops and scattered trees.	White Birch (30%) - Sugar Maple (20%) - Basswood (10%) - Bitternut Hickory (10%) - White Cedar (10%) - White Pine (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (4) and woody debris (4).	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 Significant Woodland.
TP-RB9	0.092	Old Field Meadow (CUM1-1a) with White Ash regeneration.	Sugar Maple (40%) - Basswood (10%) - Bitternut Hickory (10%) - Ironwood (10%) - White Pine (10%) - White Cedar (10%) - Other suitable native species (10%)	1-5	• 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.	• Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (3) and woody debris (3).	This unit is immediately adjacent to the Significant Woodland boundary and tree-planting will help to fill in a gap in the forest.
WE1	0.917	Wetland U1 and surrounding thickets and tree clusters.	Swamp Maple - Silver Maple - White Cedar	1-3	• 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. • Enhance breeding habitat for Jefferson Salamander and Unisexuals. • Control invasive woody species.	• Remove undesirable woody vegetation (e.g., declining Red-osier Dogwood and shrub willows); thin out any White Ash regeneration. • Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration). • Install habitat features: rock piles (10) and woody debris (10). • 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 U1 to provide potential refuges for salamander larvae and juveniles.	At present, Wetland U1 is not a viable salamander breeding pool 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.
Total	**10.553**						

[1] **EEP Unit Codes:** DA - Disturbed Area | TP-B - Tree-planting - Buffer (Years 1-2) | TP-M - Tree-planting - Reforestation & Vegetation Management (Years 1-5) | TP-RA - Tree-planting - Reforestation (Years 1-3) | TP-RB - Tree-planting - Reforestation (Years 1-5)

Table 2: Milton Quarry East Extension - Rehabilitation Plan Unit Summary

Unit[1]	Area (ha)	Feature	Plant List	Purpose	Other Management Activities	Notes
TP-RC1	1.035	Reforestation Area	White Birch (30%) - White Cedar (30%) - White Pine (20%) - Trembling Aspen (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Install habitat features: rock piles (26) and woody debris (26). • Seed with suitable groundcover seed mix. • Control weedy competition and invasive woody species during establishment stage.	This will be a generally north-facing slope that has 7 m of relief (340 mASL - 333 mASL), leading down to the shoreline wetlands.
TP-RC2	1.978	Reforestation Area	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) - Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Install habitat features: rock piles (49) and woody debris (49). • Seed with suitable groundcover seed mix. • Control weedy competition and invasive woody species during establishment stage.	This will be a ridge at elevations of 340 mASL to 336 mASL.
TP-RC3	1.279	Reforestation Area	Red Maple (20%) - White Cedar (20%) - Sugar Maple (10%) - Basswood (10%) - Trembling Aspen (10%) - Balsam Poplar (10%) - White Birch (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Create pit and mound microtopography. • Install habitat features: rock piles (32) and woody debris (32). • Seed with suitable groundcover seed mix. • Control weedy 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.
TP-RC4	0.078	Reforestation Area	Silver Maple (20%) - Red Maple (20%) - White Cedar (20%) - Trembling Aspen (10%) - Balsam Poplar (10%) - Yellow Birch (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage.	• Create pit and mound microtopography. • Install habitat features: rock piles (2) and woody debris (2). • Seed with suitable groundcover seed mix. • Control weedy competition and invasive woody species during establishment stage.	This will be a lower-lying area at or below the 334 mASL contour, near Townline. Ground surface will be approximately 1.0 m above the lake level.
TP-RC5	0.122	Reforestation Area	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) - Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Install habitat features: rock piles (3) and woody debris (3). • Seed with suitable groundcover seed mix. • Control weedy competition and invasive woody species during establishment stage.	This is a small unit near Townline at or above the 336 mASL contour.
TP-RC6	0.441	Reforestation Area	Bur Oak (20%) - Red Oak (20%) - Sugar Maple (20%) - Bitternut Hickory (10%) - Basswood (10%) - White Pine (10%) - Other suitable native species (10%)	• Expand and enhance Significant Woodlands. • Create wildlife habitat. • Enhance Cox Tract linkage. • Expand and enhance habitat for Jefferson Salamander and Unisexuals.	• Install habitat features: rock piles (11) and woody debris (11). • Seed with suitable groundcover seed mix. • Control weedy 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.
SW1	0.530	Shallow Wetland	Common Cattail (*Typha latifolia*) - Sedges (e.g., *Carex* spp., *Eleocharis* spp., *Scirpus* spp. and *Schoenoplectus* spp.) - Water-plantain (*Alisma plantago-aquatica*) - Common Arrowhead (*Sagittaria latifolia*) - Scattered shrubs (mainly *Salix* spp.) - Other suitable native wetland species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, snakes, waterfowl and other wildlife.	• Grading (coarse and fine) will 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. • Gravel or sand beaches will be created along the shorelines. • Install submerged and partially submerged rocks/boulders, root masses and logs.	Unit SW1 is the main shoreline wetland unit located at the base of the north-facing slope that contains Unit TP-RC1.
SW1	0.727	Shallow Wetland	Common Cattail (*Typha latifolia*) - Sedges (e.g., *Carex* spp., *Eleocharis* spp., *Scirpus* spp. and *Schoenoplectus* spp.) - Water-plantain (*Alisma plantago-aquatica*) - Common Arrowhead (*Sagittaria latifolia*) - Scattered shrubs (mainly *Salix* spp.) - Other suitable native wetland species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, snakes, waterfowl and other wildlife.	• Grading (coarse and fine) will 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. • Gravel or sand beaches will be created along the shorelines. • Install submerged and partially submerged rocks/boulders, root masses and logs.	Unit SW2 is the shallow water area around Islands IS1, IS2 and IS3.
SW1	0.280	Shallow Wetland	Common Cattail (*Typha latifolia*) - Sedges (e.g., *Carex* spp., *Eleocharis* spp., *Scirpus* spp. and *Schoenoplectus* spp.) - Water-plantain (*Alisma plantago-aquatica*) - Common Arrowhead (*Sagittaria latifolia*) - Scattered shrubs (mainly *Salix* spp.) - Other suitable native wetland species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, snakes, waterfowl and other wildlife.	• Grading (coarse and fine) will 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. • Gravel or sand beaches will be created along the shorelines. • Install submerged and partially submerged rocks/boulders, root masses and logs. • At the interface with deeper water, create rocky shoals to within 1.0 m of the water surface, with some areas just above water.	Unit SW3 is the shallow water area adjacent to the created wooded slope (Unit TP-RC6).
DW1	1.088	Deep Wetland	Pondweeds (*Potamogeton* spp.) - Common Bladderwort (*Utricularia vulgaris*) - Coontail (*Ceratophyllum demersum*) - Fragrant Water-lily (*Nymphaea odorata*) - Common Duckweed (*Lemna minor*) - Stonewort (*Chara* sp.) - Other suitable native aquatic species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, waterfowl and other wildlife.	• Grading will produce a variety of slopes and deeper pockets. • At the interface with deeper water, create rocky shoals to within 1.0 m of the water surface, with some areas just above water. • Install submerged rocks/boulders, root masses and logs.	Unit DW1 is the main Deep Wetland area that surrounds Islands IS1, IS2 and IS3.
DW2	0.035	Deep Wetland	Pondweeds (*Potamogeton* spp.) - Common Bladderwort (*Utricularia vulgaris*) - Coontail (*Ceratophyllum demersum*) - Fragrant Water-lily (*Nymphaea odorata*) - Common Duckweed (*Lemna minor*) - Stonewort (*Chara* sp.) - Other suitable native aquatic species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, waterfowl and other wildlife.	• Grading will produce a variety of slopes and deeper pockets. • Install submerged rocks/boulders, root masses and logs.	Unit DW2 is a small area of Deep Wetland located in between Islands IS1 and IS2.
DW3	0.035	Deep Wetland	Pondweeds (*Potamogeton* spp.) - Common Bladderwort (*Utricularia vulgaris*) - Coontail (*Ceratophyllum demersum*) - Fragrant Water-lily (*Nymphaea odorata*) - Common Duckweed (*Lemna minor*) - Stonewort (*Chara* sp.) - Other suitable native aquatic species	• Create new lacustrine wetland area. • Create habitat for fish, amphibians, turtles, waterfowl and other wildlife.	• Grading will produce a variety of slopes and deeper pockets. • Install submerged rocks/boulders, root masses and logs.	Unit DW3 is a small area of Deep Wetland located in between Islands IS2 and IS3.
IS1	0.114	Island	Little Bluestem (*Schizachyrium scoparium*) (40%) - Switchgrass (*Panicum virgatum*) (20%) - Big Bluestem (*Andropogon gerardii*) (20%) - Suitable native wildflower species (20%)	• Create island habitat that will provide habitat for nesting waterfowl, shorebirds and turtles. • Shallow water between and around islands will provide sheltered nursery habitat for fish.	• The island will be capped with various granular substrates (gravels and coarse sands), as well as patches of boulders and cobbles. • Placement of at least 10 logs and/or stumps/root wads. • At least 3 turtle nesting sites will be constructed on the island well above the high-water line, using suitable granular material. Dimensions of turtle nesting areas will be approximately 8-10 m by 4-5 m and the nesting areas will be oriented to provide south and/or southwest exposures.	The islands are oriented towards the prevailing wind from the west and northwest, with sheltered coves on the leeward side. Shallow Wetland and Deep Wetland areas are associated with the islands.
IS2	0.123	Island	Little Bluestem (*Schizachyrium scoparium*) (40%) - Switchgrass (*Panicum virgatum*) (20%) - Big Bluestem (*Andropogon gerardii*) (20%) - Suitable native wildflower species (20%)	• Create island habitat that will provide habitat for nesting waterfowl, shorebirds and turtles. • Shallow water between and around islands will provide sheltered nursery habitat for fish.	• The island will be capped with various granular substrates (gravels and coarse sands), as well as patches of boulders and cobbles. • Placement of at least 10 logs and/or stumps/root wads. • At least 3 turtle nesting sites will be constructed on the island well above the high-water line, using suitable granular material. Dimensions of turtle nesting areas will be approximately 8-10 m by 4-5 m and the nesting areas will be oriented to provide south and/or southwest exposures.	The islands are oriented towards the prevailing wind from the west and northwest, with sheltered coves on the leeward side. Shallow Wetland and Deep Wetland areas are associated with the islands.
IS3	0.150	Island	Little Bluestem (*Schizachyrium scoparium*) (40%) - Switchgrass (*Panicum virgatum*) (20%) - Big Bluestem (*Andropogon gerardii*) (20%) - Suitable native wildflower species (20%)	• Create island habitat that will provide habitat for nesting waterfowl, shorebirds and turtles. • Shallow water between and around islands will provide sheltered nursery habitat for fish.	• The island will be capped with various granular substrates (gravels and coarse sands), as well as patches of boulders and cobbles. • Placement of at least 10 logs and/or stumps/root wads. • At least 3 turtle nesting sites will be constructed on the island well above the high-water line, using suitable granular material. Dimensions of turtle nesting areas will be approximately 8-10 m by 4-5 m and the nesting areas will be oriented to provide south and/or southwest exposures.	The islands are oriented towards the prevailing wind from the west and northwest, with sheltered coves on the leeward side. Shallow Wetland and Deep Wetland areas are associated with the islands.
Total	**8.015 ha**					

[1] **Rehabilitation Plan Unit Codes:** TP-RC - Tree-planting/Reforestation | SW - Shallow Wetland | DW - Deep Wetland | IS - Island

A. General

1. The following ecological enhancements and quarry rehabilitation are derived from the *Ecological Enhancement Plan (EEP) and Rehabilitation Plan Report* (Goodban Ecological Consulting Inc. December, 2021). The licensee shall complete the following requirements.

Ecological Enhancement Plan for Land That Will Not be Extracted

B. EEP Target Vegetation Communities

1. The following are the target vegetation communities for the MQEE Ecological Enhancement Plan:
   - Dry-Fresh Cedar Coniferous Forest Ecosite (FOC2)
   - 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)
   - Dry-Fresh Oak - Maple - Hickory Ecosite (FOD2)
   - Dry Fresh Poplar - White Birch Deciduous Forest Ecosite (FOD3)
   - Maple Mineral Deciduous Swamp Ecosite (SWD3)

C. EEP Reforestation Approach

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. Suitable native woody regeneration will be retained. Planting will occur during early spring or late fall, with spring planting being preferred. Nursery stock will be derived from local seed sources, i.e., from Seed Zone 34. However, if sufficient nursery stock is not available, stock from adjacent NDMNRF Seed Zones may be utilized (e.g., Seed zones 32 and 37). 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 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 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.

3. Woody species selections for each EEP Unit are provided in Table 1.

D. EEP Reforestation Timelines

1. The buffer planting areas TP-B1 to TP-B6 will be planted in Years 1 to 2 after licence issuance.

2. 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 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 between Wetland U1 and the Significant Woodland to the southeast.

4. 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 to 5 after licence issuance.

5. Tree-planting in and around Wetland U1 will be completed in Years 1 to 3 after licence issuance.

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 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).

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%. 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.

F. EEP Vegetation Management Areas

1. 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.

2. Vegetation management activities proposed for Units TP-M1 and TP-M2 include the following:

   2.1. Remove undesirable woody vegetation (e.g., Common Buckthorn); thin out any White Ash regeneration; remove defective stems;

   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: rock piles (25) and woody debris (25); and,

   2.5. Clean up old farm junk piles.

G. EEP Habitat Features

1. Rock Piles

   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.

   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.

2. 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 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.

   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.

   2.3. 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.

H. EEP - Wetland U1 Habitat Enhancements

1. Implementation of the enhancement measures listed below will serve to increase the productivity of U1 for amphibian breeding, including Jefferson Salamander:

   1.1. Remove undesirable woody vegetation (e.g., declining Red-osier Dogwood and shrub willows); thin out any White Ash regeneration;

   1.2. Retain desirable woody vegetation (e.g., hawthorns, hardwood regeneration);

   1.3. Plant Swamp Maple (*Acer* X *freemanii*), Silver Maple (*Acer saccharinum*) and White Cedar (*Thuja occidentalis*) around the edges of Wetland U1;

   1.4. Install habitat features: rock piles (10) and woody debris (10);

   1.5. Install egg mass attachment sites within Wetland U1 (e.g., small branches with fine twigs); and,

   1.6. Install some small clusters of rocks and woody debris within Wetland U1 to provide potential refuges for salamander larvae and juveniles.

Rehabilitation Plan for Land That Will be Extracted

I. Rehabilitation Plan - General Approach

1. The MQEE Rehabilitation Plan will cover the 15.9 hectares extraction area and include the following main rehabilitation themes:

Deep Lake	7.7 ha
Deep Wetlands	1.2 ha
Shallow Wetlands	1.5 ha
Islands	0.4 ha
Reforestation	5.1 ha *
Cliffs	673 m
Rocky Shoals	203 m

* 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.

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.

J. Rehabilitation Plan - Target Vegetation Communities

1. The following are the target vegetation communities for the MQEE Rehabilitation Plan:
   - 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)
   - White Birch - Aspen Treed Carbonate Cliff Type (CLT1-3)
   - Dry-Fresh Cedar Coniferous Forest Ecosite (FOC2)
   - 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)
   - Dry-Fresh Oak - Maple - Hickory Ecosite (FOD2)
   - Dry Fresh Poplar - White Birch Deciduous Forest Ecosite (FOD3)
   - Cultural Woodland Ecosite (CUW1)
   - Cultural Thicket Ecosite (CUT1)
   - Dry Tallgrass Prairie Ecosite (TPO1)
   - Mineral Thicket Swamp Ecosite (SWT2)
   - Mineral Shallow Marsh Ecosite (MAS2)
   - Mixed Shallow Aquatic Ecosite (SAM1)

K. Rehabilitation Plan - Deep Lake

1. The extended East Cell Lake is designed to maintain passive movement of groundwater to support the water-dependent natural features surrounding the proposed MQEE. The lake will cover approximately 7.7 hectares and it will incorporate aquatic features such as varied shorelines with shallow nearshore habitats and shoals to provide spawning and foraging habitat for fish and other wildlife. 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 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 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.

L. Rehabilitation Plan - Wetlands

1. 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 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).

2. The following are the target shoreline wetland and cove communities:
   - Mineral Open Beach/Bar (BBO1)
   - Willow Gravel Shrub Beach Type (BBS1-2)
   - Mineral Shallow Marsh Ecosite (MAS2)
   - Mixed Shallow Aquatic Ecosite (SAM1)
   - Mineral Thicket Swamp Ecosite (SWT2)

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 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.

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, 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.

5. 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.

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 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.

2. The following community types are expected to develop on the islands:
   - Mineral Open Beach/Bar (BBO1)
   - Willow Gravel Shrub Beach Type (BBS1-2)
   - Dry Tallgrass Prairie Ecosite (TPO1)

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).

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 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.

2. Reforestation details are shown on Figures 1.0 and 2.0. Species selections and treatments for the various units are provided in Table 2.

O. Rehabilitation Plan - Reforestation - Planting Approach

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 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 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

1. 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 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).

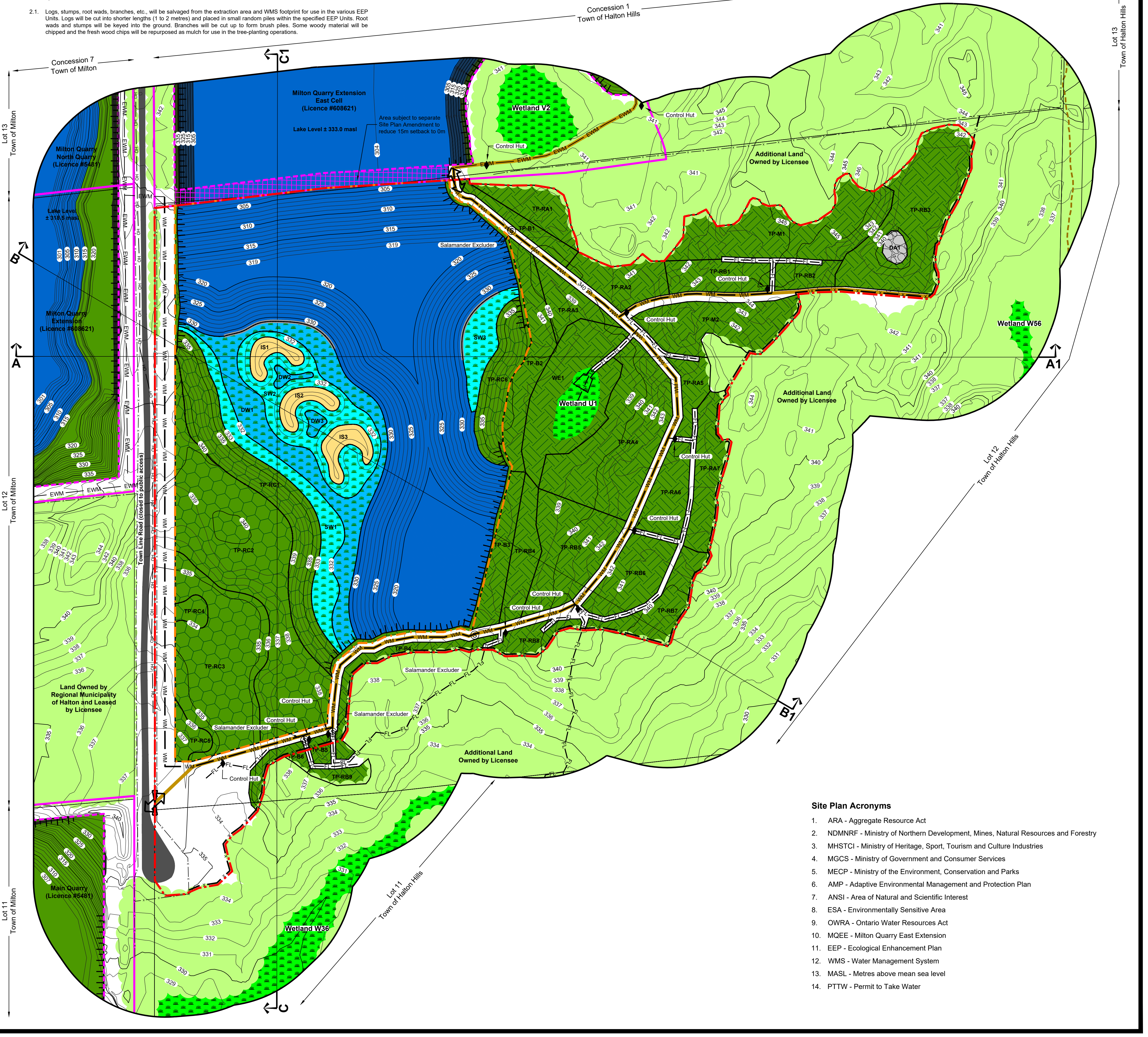
2. Plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. At the free-to-grow condition, the survival (stocking standard) of planted trees shall be a minimum of 50%. If survival is less than 50%, replacements will be planted in order to achieve a density of 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.

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.

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.

3. It is anticipated that the following cliff community types will develop naturally over time:
   - Carbonate Open Cliff Ecosite (CLO1)
   - White Cedar Treed Carbonate Cliff Type (CLT1-1)
   - White Birch - Aspen Treed Carbonate Cliff Type (CLT1-3)



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Legal Description

Part of Lots 11 and 12, Concession 1
(former geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

🟥	Licence Boundary	🟪	Existing Licence Boundary
🟧	Limit of Extraction	🟪	Existing Limit of Extraction
149 150 151	Contours with Elevation Metres above sea level (MASL)		120m Offset From Licence Boundary
🟩	Wooded Area		Lots and Concessions
🟩	Wetland Boundaries Delineated by GEC	🟫	Trail Segment
🟦	Shallow Wetland Post Rehabilitation	⬛	Road
🟦	Deep Wetland Post Rehabilitation	🟨	Service Access Road
🟦	Deep Lake Post Rehabilitation	OH	Overhead Hydro
🟨	Islands Post Rehabilitation	EWM	Existing Watermain
🟩	Forested Areas Post Rehabilitation - Within Limit of Extraction	WM	Main Watermain
🟩	Forested Areas Post Rehabilitation - Outside Limit of Extraction	FL	Feeder Line
⬜	Snake Hibernaculum Post Rehabilitation	x	Fence 1.2m post & wire fence unless otherwise noted Existing - Thin | Proposed - Bold
	Cliff Face Post Rehabilitation	⇔	Entrance / Exit Field Entrance
	Rocky Shoal Post Rehabilitation	⋈	Gate
Ⓢ	Salamander Excluder Location	A1	Cross Sections
♦	Control Hut		

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1	January 2022	Update Operational Plan per feedback from NDMNRF	CAP

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Site North

N
W E
S

True North

Applicant

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A Division of CRH Canada Group Inc.
2300 Steeles Avenue West, 4th Floor
Concord, Ontario
L4K 5X6

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

NDMNRF Licence Reference No.

Applicant's Signature

Plan Scale: 1:2000 (Arch E)
0 60 120 Meters

Date December 2021

Drawn By C.P.

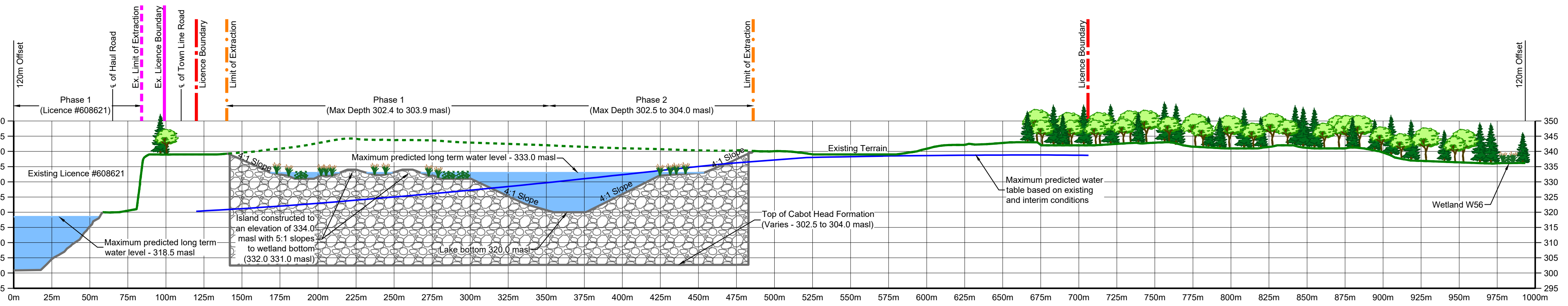
Checked By B.Z.

File No. 9061DJ

File Name Ecological Enhancement Plan

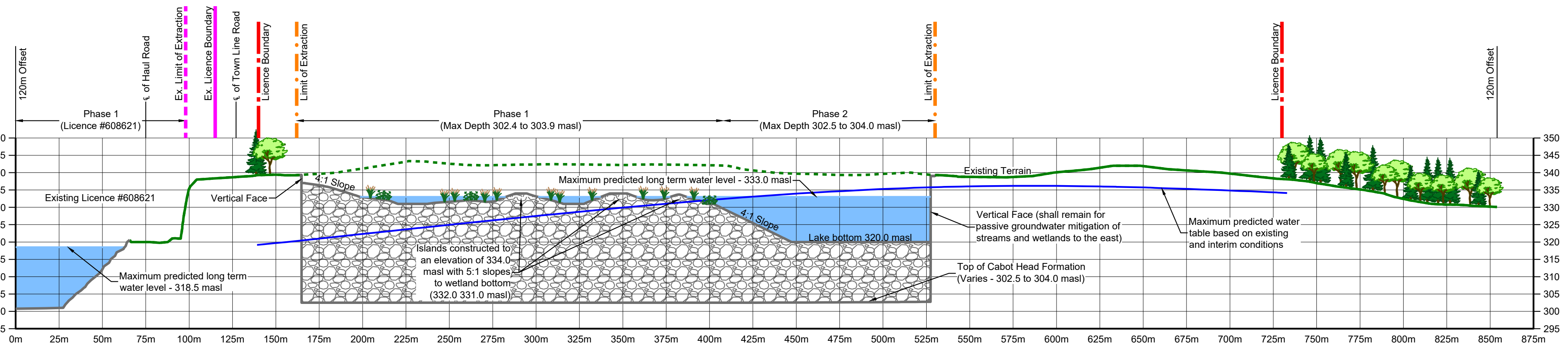
Drawing No. 3 of 4

File Path N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plan - January 2022.dwg



Section A-A1

1:2000 Horizontal
1:1000 Vertical



Section B-B1

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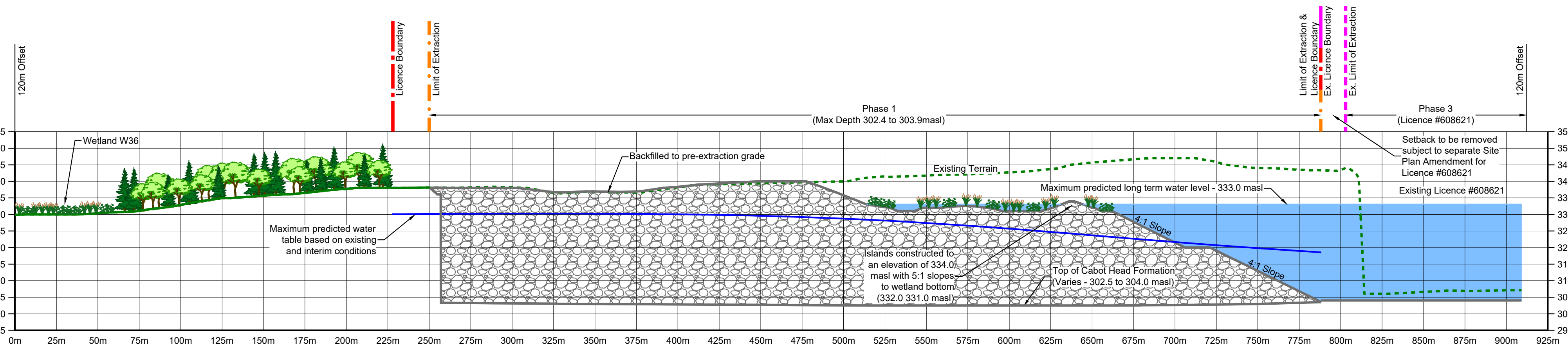
1:1000 Vertical



Section C-C1

1:2000 Horizontal
1:1000 Vertical

General Notes

1. Area Calculations:
   a. Licence boundary 30.2 ha
   b. Limit of Extraction 15.9 ha
2. Possible after uses may include:
   a. Conservation
   b. Passive recreation
   c. Low intensity recreation
3. The licensee will apply for surrender of the licence 1 year after the rehabilitation (with the exception of lake filling) and two post extraction 5 year reviews, have been successfully completed.

Rehabilitation Notes

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

59. The final rehabilitated landform of the site will consist of a lake, wetlands, islands, above/below water vertical extraction faces and terrestrial habitat (see drawing 3 of 4 for additional details regarding landform creation).

60. Progressive rehabilitation shall commence as limits of extraction are reached within each Phase. Progressive rehabilitation will generally follow the direction and sequence of extraction identified on the plan view and described in the notes on drawing 2 of 4. Slight variations in the operational and rehabilitation sequence shall be permitted in order to adjust for any variable resource, variable market conditions, or for environmental mitigation requirements such as retaining contingency extraction areas. Any major variation from the operational and rehabilitation sequence shall require approval from the NDMNRF.

61. Topsoil and overburden shall be stripped, stored and/or placed separately wherever there are distinguishable layers and sufficient thickness to allow separate handling.

    Topsoil and overburden materials may be transferred between this licence and Licence #5481 and #608261 (see Operational Note 54 - Variations from Control and Operation Standards on drawing 2 of 4). Topsoil and organic material shall be transported to areas being prepared for final rehabilitation and overburden material shall be used as structural material or general backfill to bring areas up to required finished grade.

    Temporary stockpiling of topsoil or overburden may occur during transfer and replacement operations. Any 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.

62. Excess soil, as defined by Ontario Regulation 406/19 under the Environmental Protection Act and/or peat may be imported to this site for the following rehabilitation purpose:

    - To establish the slopes, grades and elevations depicted on the plan view

    Excess soil will be accepted in accordance with the "Milton Quarry Off-site Excess Soil Acceptance Protocol". This protocol shall be filed with NDMNRF prior to acceptance of any off-site excess soil.

    The maximum amount of excess soil that may be imported to this licence for rehabilitation purposes is 3,850,000 m³.

63. Vegetation shall be re-established within the limit of extraction during progressive and final rehabilitation in accordance with the planting details provided on drawing 3 of 4.

64. In order to establish the final rehabilitated landform proposed on the plan view, a variety of rehabilitation techniques will be utilized including:
    a. Backfilling extraction faces and the quarry floor;
    b. Partially backfilling extraction faces to create cliffs; or
    c. Leaving extraction faces vertical

    Figures 1 to 4 below provide additional information for the rehabilitation techniques.

    The wetlands, islands, and terrestrial habitat areas shall be backfilled using on-site overburden and non-marketable materials from this site or adjacent Licence #608621 (see Operational Note 54 - Variations from Control and Operation Standards on drawing 2 of 4) as wells as excess soils in accordance with note 62 on this drawing.

    The objective is to integrate wetlands, islands, terrestrial habitat and irregular vertical faces (with shelf areas and habitat niches) around the perimeter of the lake (as depicted on the plan view). This will establish a more diverse landscape with a range of flora and fauna habitats.

    Additional planting details are provided on drawing 3 of 4.

65. No buildings shall remain on site except for those associated with the recharge mitigation system (e.g. control huts) which will be maintained in accordance with applicable OWRA permits to manage the proposed lake level.

    No internal haul roads shall remain on-site. Service access roads shall remain to access the watermains and associated facilities.

66. Final surface drainage will follow the rehabilitated contours and directional arrows shown on the plan view. Drainage shall be directed inwards towards the lake and wetlands.

    The final predicted water table on-site post extraction is at an elevation of 333.0 masl. The maximum predicted water table elevation is based on existing and interim conditions and is shown in each cross section on this drawing and drawing 1 of 4.

    Operation of the mitigation system and associated monitoring as outlined in the AMP shall be continued during the rehabilitation period. The water levels of the proposed lake and rate of lake filling shall be evaluated five years after extraction is complete to refine the appropriate final elevations for the development of the shoreline and associated wetland features. These features shall be finalized and appropriate shoreline vegetation shall be completed during the subsequent five year evaluation period. These two five year reviews shall be completed prior to the surrender of the licence and include an overall evaluation of the performance of the mitigation measures to confirm the objectives are being achieved and the operation is sustainable over the long term as described in the AMP.

67. The final rehabilitation landform is illustrated by one metre contours on the plan view.

68. Not applicable since this is not a Class B licence.

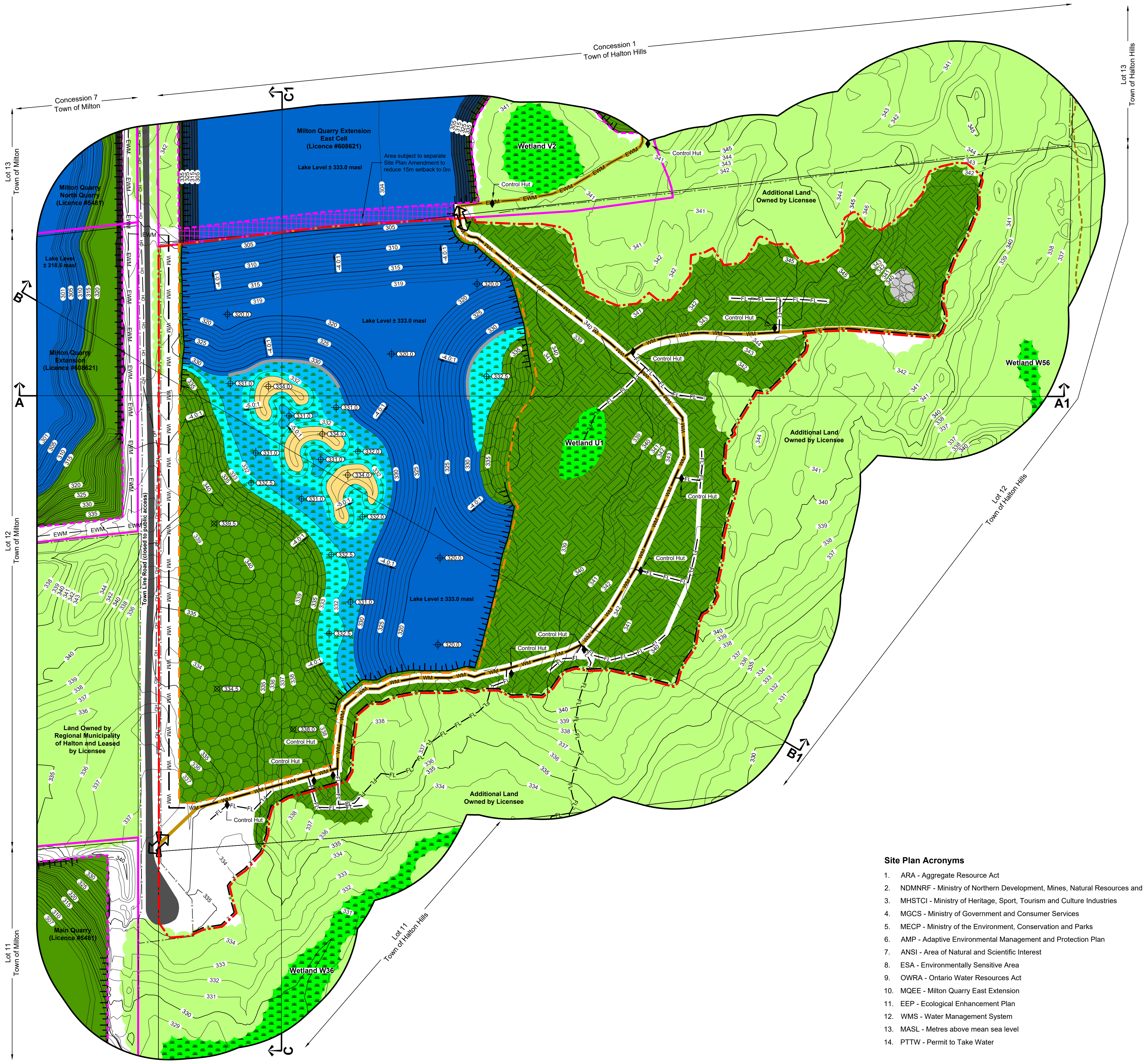
Cross Sections Notes

69. Cross section locations are identified on the plan view for each drawing.

70. The horizontal scale is 1:2000 while the vertical scale is 1:1000 for cross sections on this drawing and drawing 1 of 4.

71. Cross sections on drawing 1 of 4 depict the existing conditions while the cross sections on this drawing depict the final rehabilitation landform.

72. The maximum predicted water table based on existing and interim conditions is illustrated as a solid blue line on each cross section.



1. Fill slope to be extended from quarry floor to the wetlands and from the wetlands to match grade with stabilized overburden on cliff top.
2. The objective for this treatment is to provide linkages between the quarry lake system and the surrounding natural areas.
3. Slope no steeper than 4:1 with a layer of topsoil suitable for planting with native seed or transplanted material.
4. Habitat diversity will be increased by leaving a small scarp or cliff face between the quarry face and the fill slope (i.e. 1-2 m) in places. These forested micro-cliff faces often provide habitat for rare and specialized plant species as well as hibernacula.
5. Planting will vary according to slope aspect and moisture regime. Fast-growing, successional species will be used in some areas while longer-lived species will be used in other areas. Species selections are provided in Table 2: Rehabilitation Plant Unit Summary.
6. Shoreline vegetation to be chosen to maximize the habitat diversity and provide aquatic/terrestrial connections.

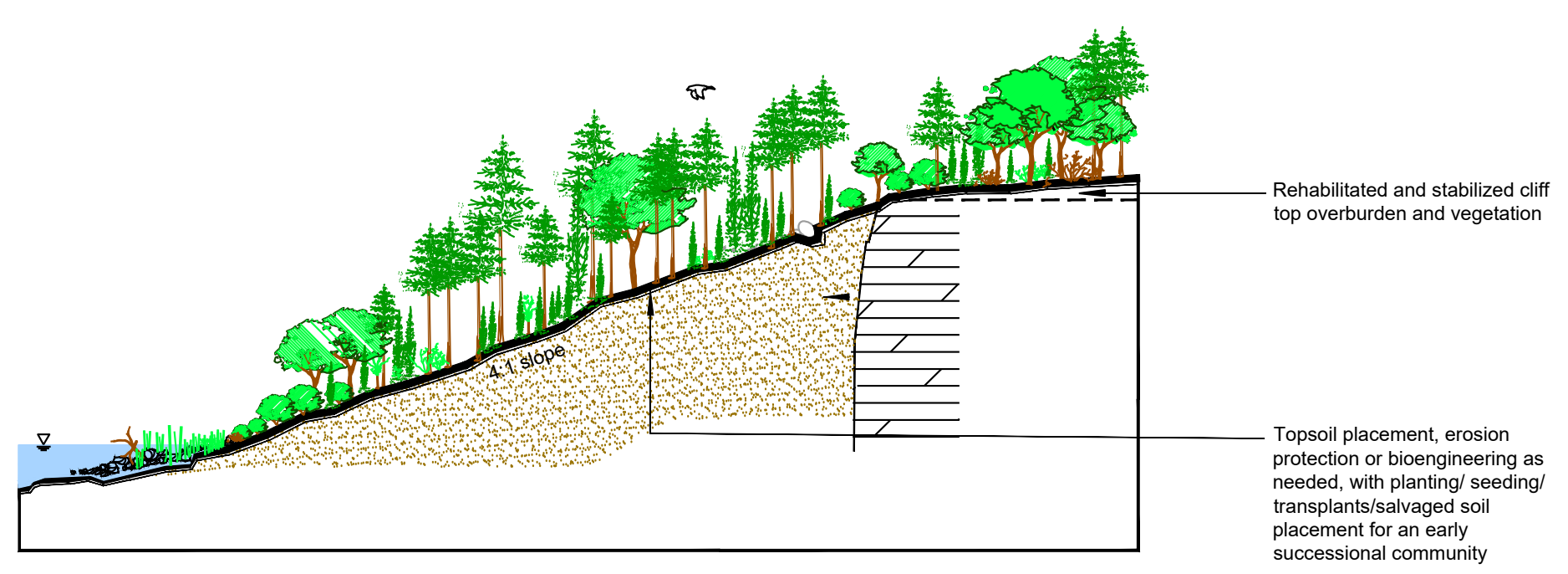


Figure 1.0 - Vegetated Slope to Cliff Top

1. Fill slope to be extended from quarry floor to the wetlands and from the wetlands to the exposed quarry face.
2. The objective for this treatment is to create habitats that are complementary to the Escarpment landscape, with cliffs and vegetated slopes above the shoreline wetlands.
3. Slopes no more than 4:1 and should be at a gradient that maximizes connectivity with shoreline habitats. Height of quarry face will vary.
5. Planting will vary according to slope aspect and moisture regime. Fast-growing, successional species will be used in some areas while longer-lived species will be used in other areas. Species selections are provided in Table 2: Rehabilitation Plant Unit Summary.
6. Shoreline vegetation to be chosen to maximize the habitat diversity and provide aquatic/terrestrial connections.

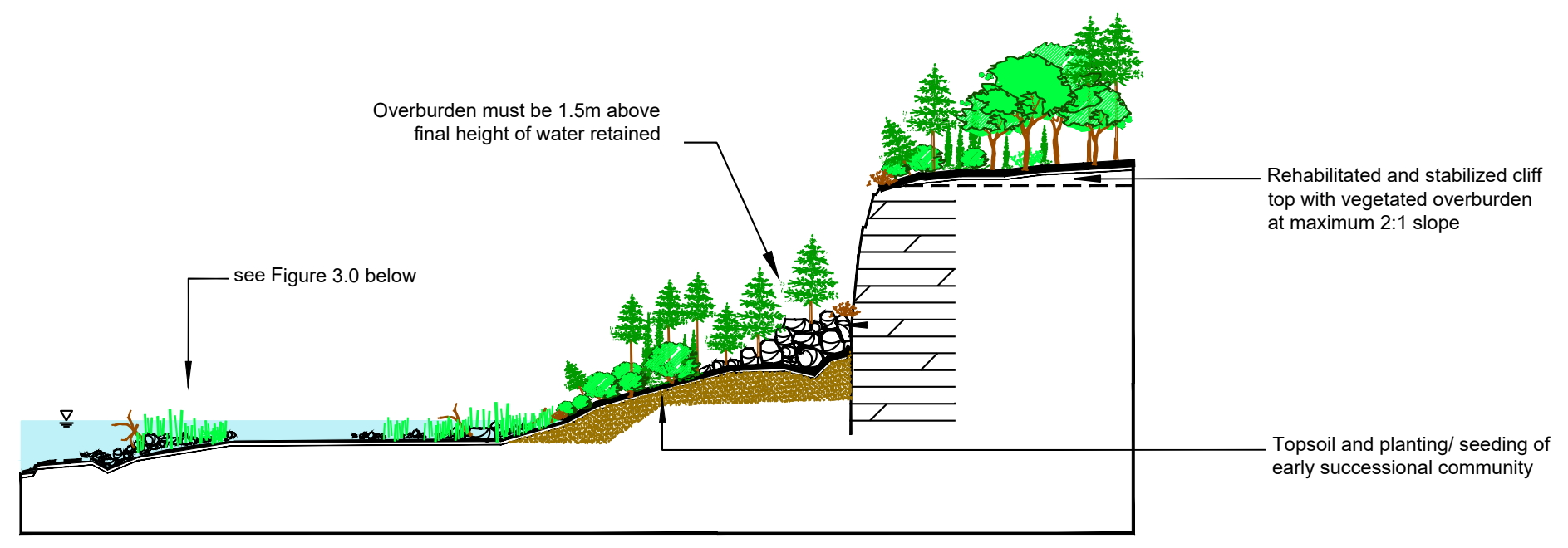


Figure 2.0 - Vegetated Slope to Exposed Bedrock Face

1. Fill slope to be extended from quarry floor to the wetlands.
2. The objective is to create vegetated wetland, shoreline marsh and submergent aquatic communities, as well as nursery and forage fish habitat with seasonal access to large predatory fish, (for spawning) and habitat connections for terrestrial species.
3. The outer edge of the wetlands will have a submerged shoal no more than ±0.3m deep, with a range of depths emphasizing the 0.5m to 1.0m and 0m to 0.5m zones for submergent and emergent vegetation respectively, and selected areas with sand and gravel substrates for potential spawning, and a nearshore emergent marsh community with associated structures and shoreline cover.
4. Shallow emergent marsh vegetation extending to ±0.15 m deep ±5 m from shore (e.g. water plantain, arrowhead, sedges, spikerushes and bulrushes); interspersed with cover structures (e.g. boulders, root wads). Species selections are provided in Table 2: Rehabilitation Plant Unit Summary.
   - 4.1. Organic material and topsoil should be added to most shoreline areas to promote shoreline vegetation. Organic material in deeper littoral areas will provide the required substrate for wintering amphibians and turtles and support emergent and submergent growth. Organic material shall only be used if it is confirmed to be free of invasive species such as European Common Reed and Purple Loosestrife.
   - 4.2. Supplement with basking logs to create turtle habitat, nesting platforms and boxes for waterfowl and sandy slopes on south facing exposure for potential turtle nesting.
5. A marsh zone from ±0.15 to ±0.65 m deep dominated by species such as cattails and rushes, with scattered submerged fish habitat structures and open areas with sand and fine gravel substrates for certain inverebrate and forage species.
6. Deeper areas to provide floating leafed/submergent wetland component with plants such as species of water lily, pondweed, duckweed, coontail, bladder-wort.
7. On outer exposed face of shoal, gravels (3 to 6 cm diam.) will be placed to provide potential spawning habitat for fish (ie: smallmouth bass); "placement" of sand & gravel in some shallow areas and on reef will provide potential spawning habitat for sunfish and some forage species.

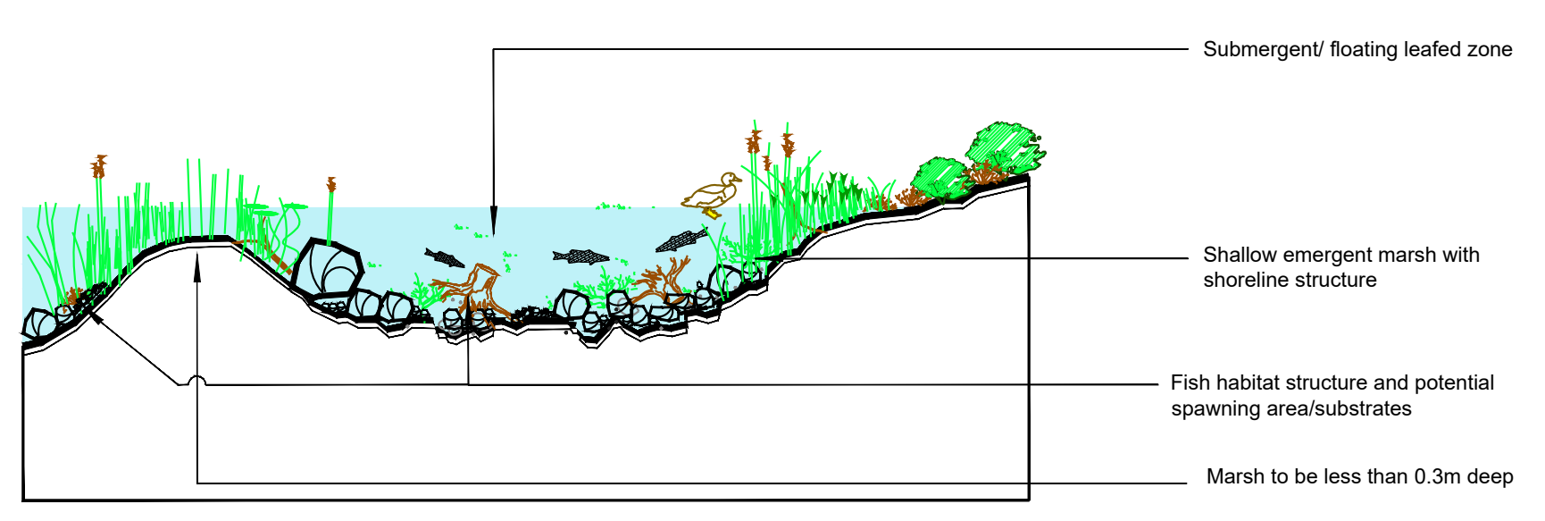


Figure 3.0 - Shoreline Wetland

1. Quarry face to extend from cliff top to filled quarry floor. Selective blasting will create irregular cliff face, shelves and niches on exposed vertical faces above and below water level. Blast rock piles will remain on quarry floor below water level to provide submerged aquatic habitat structure.
2. Exposed faces are required for the passive groundwater mitigation of streams and wetlands to the east. These faces will provide cliff and open deep water habitat. No backfilling of overburden shall occur (see Variations from Control and Operation Standards on drawing 2 of 4).

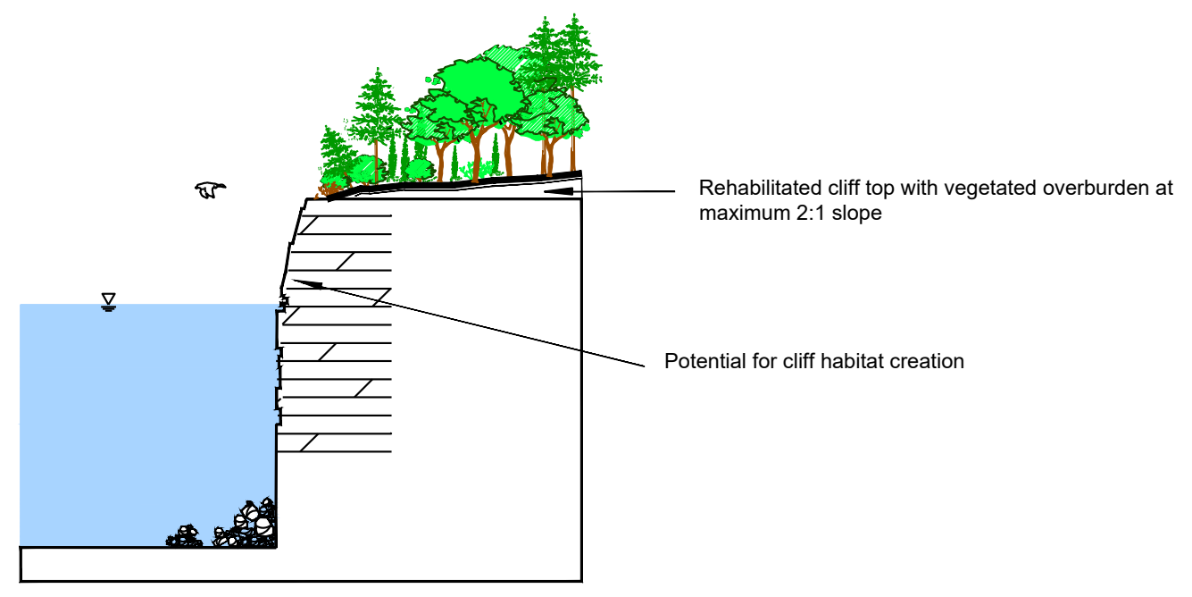


Figure 4.0 - Vertical Face

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Regional Municipality of Halton

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Licence Boundary
Limit of Extraction
Contours with Elevation
Metres above sea level (MASL)
🟩 Wooded Area
🟩 Wetland
Boundaries Delineated by GEC
🟦 Shallow Wetland
Post Rehabilitation
🟦 Deep Wetland
Post Rehabilitation
🟦 Deep Lake
Post Rehabilitation
🟨 Islands
Post Rehabilitation
🟩 Forested Areas
Post Rehabilitation - Within Limit of Extraction
🟩 Forested Areas
Post Rehabilitation - Outside Limit of Extraction
Snake Hibernaculum
Post Rehabilitation
Cliff Face
Post Rehabilitation
Rocky Shoal
Post Rehabilitation
♦ Control Hut

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Existing Limit of Extraction
120m Offset From Licence Boundary
Lots and Concessions
Trail Segment
Road
Service Access Road
OH Overhead Hydro
EWM Existing Watermain
WM Main Watermain
FL Feeder Line
Fence
1.2m post & wire fence unless otherwise noted
Existing - Thin | Proposed - Bold
⇔ Entrance / Exit
Field Entrance
Gate
Proposed Floor Elevation
Metres above mean sea level (MASL)
Proposed Final Grade
(Horizontal : Vertical)
A1 Cross Sections

Legend - Cross Sections

Licence Boundary
Limit of Extraction
Existing Licence Boundary
Existing Limit of Extraction
Existing Grade (Removed / Altered)
Existing Grade (Undisturbed)

Maximum Predicted Water Table - Based on existing and interim conditions
Quarry Floor / Face
Backfilled
🟦 Lake or Pond

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No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

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True North

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L4K 5X6

Project *Milton Quarry East Extension*

10305 Nassagaweya Esquesing Townline, Halton Hills, Ontario

NDMNRF Licence Reference No.

Applicant's Signature

Plan Scale: 1:2000 (Arch E)
0 60 120 Meters

Date December 2021

Drawn By C.P.

Checked By B.Z.

File No. 9061DJ

File Name Rehabilitation Plan

Drawing No. 4 of 4

File Path N:\Brian\9061DJ Dufferin - Milton Quarry East Extension\Drawings - Must be in NAD 27\Site Plan\CAD\9061DJ - Site Plan - January 2022.dwg