

**Legend**

	Licence Boundary		120m Offset From Licence Boundary
	Limit of Extraction		Existing Licence Existing Line of Extraction (solid line) Existing Line of Extraction (dashed line)
	Contours with Elevation Metres above sea level (MASL)		Parcel Fabric
	Public Road		Diversion or Discharge Pipe Existing - Single Dash
	Fence 1.2m post & wire fence unless otherwise noted		Discharge Location
	Water Feature		Jefferson Salamander Regulatory Boundary
	Irrigation Pond		Fish Habitat Direct - solid Indirect - dash
	Significant Woodlands		Sun-Canadian Pipe Line Pipe line location and easement
	Woodlands		Entrance / Exit Existing
	Wooded Feature		Direction of Surface Drainage
	Wetland Savanna		Building/Structure
	Wetland MNRP - Provincially Significant		Cross Sections A1
	Wetland MNRP - Unvaluated		

**Significant Wildlife Habitat**

	Amphibian Breeding (Woodland)		Unicorn Clubtail
	Bat Maternity Colony		Eastern Wood-pewee
	Rare Vegetation Community		Large Toothwort Community

**Species at Risk**

	Butternut Category 1
	Butternut Category 2
	Bobolink
	Barn Swallow Nest Observation
	Bat Habitat (Little Brown Myotis and Tricoloured Bat)

**Site Plan Amendments**

No.	Date	Description	By

**Site Plan Revisions (Pre-Licensing)**

No.	Date	Description	By
1.	September 2020	Update date of Archaeological Assessment Report in Section H	CAP
2.	April 2021	Included MNRP wetlands for South Extension. Added Significant Wildlife Habitat, Species of Conservation Concern and Species at Risk. Update legend.	CAP

**MHBC**  
 PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE  
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MNR Approval Stamp: **DRAFT**

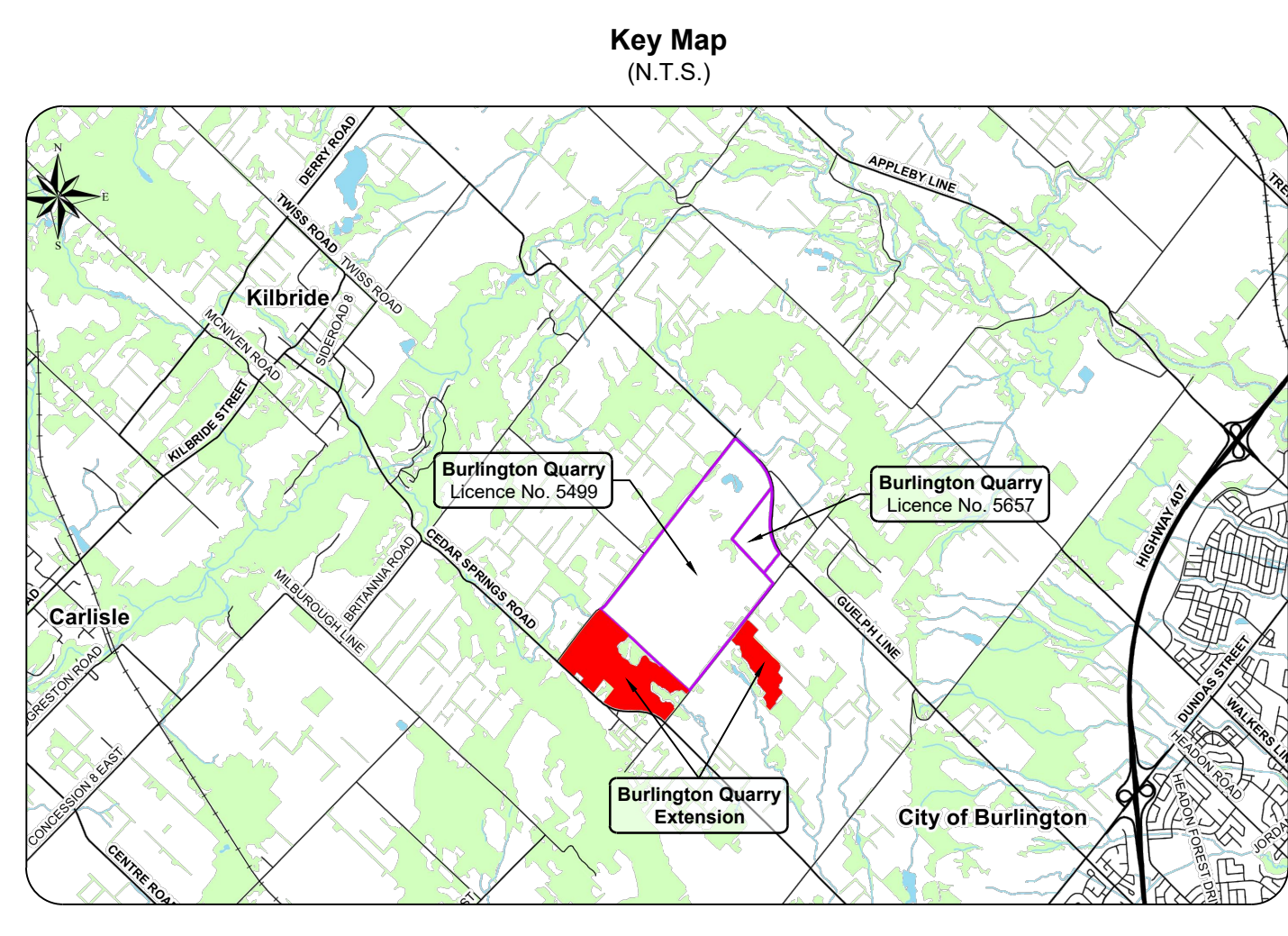
Applicant: **NELSON AGGREGATE CO.**  
 2433 No. 2 St. Road  
 P.O. Box 1070, Burlington, Ont. L7R 4L8  
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Project: **Burlington Quarry Extension**

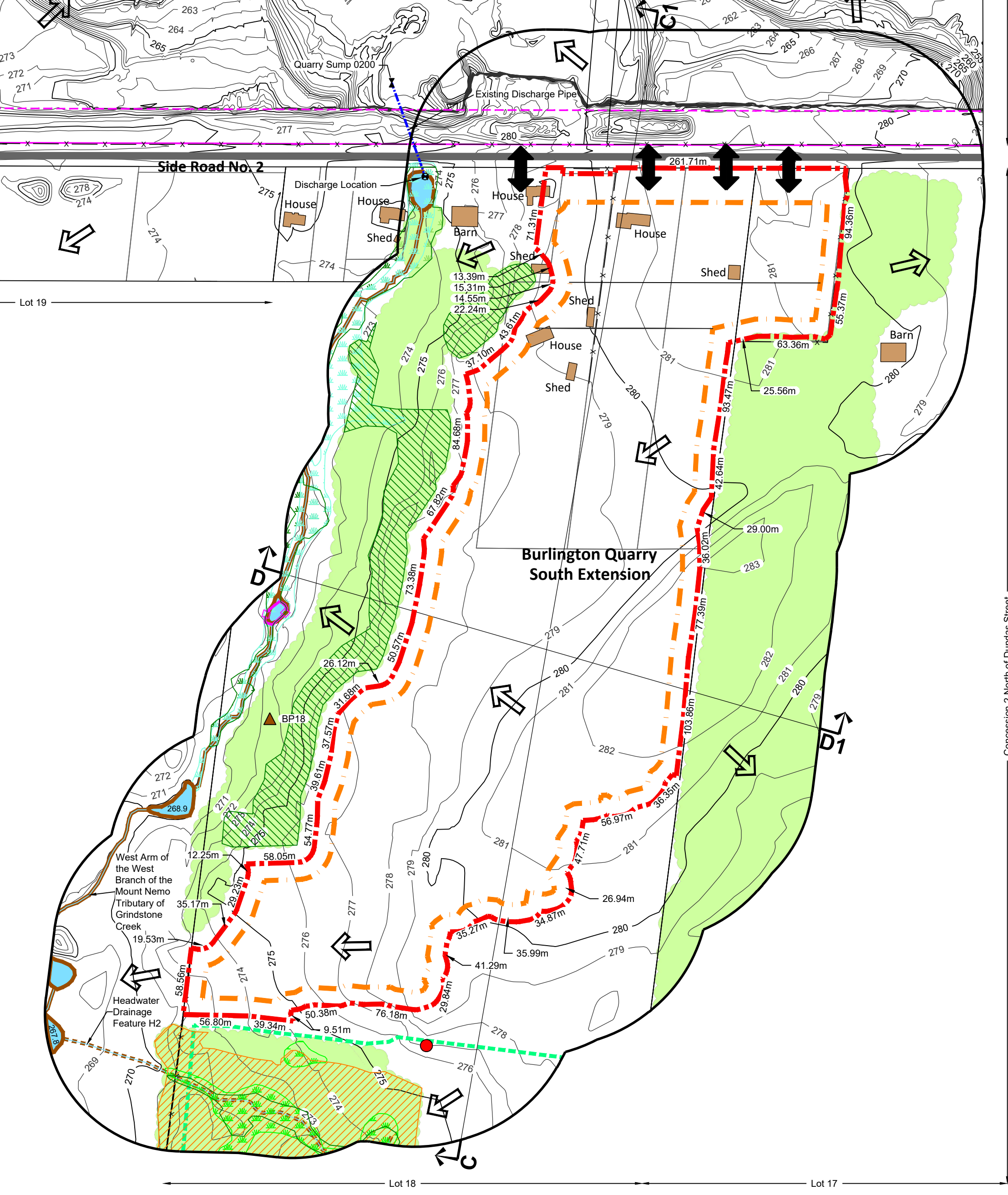
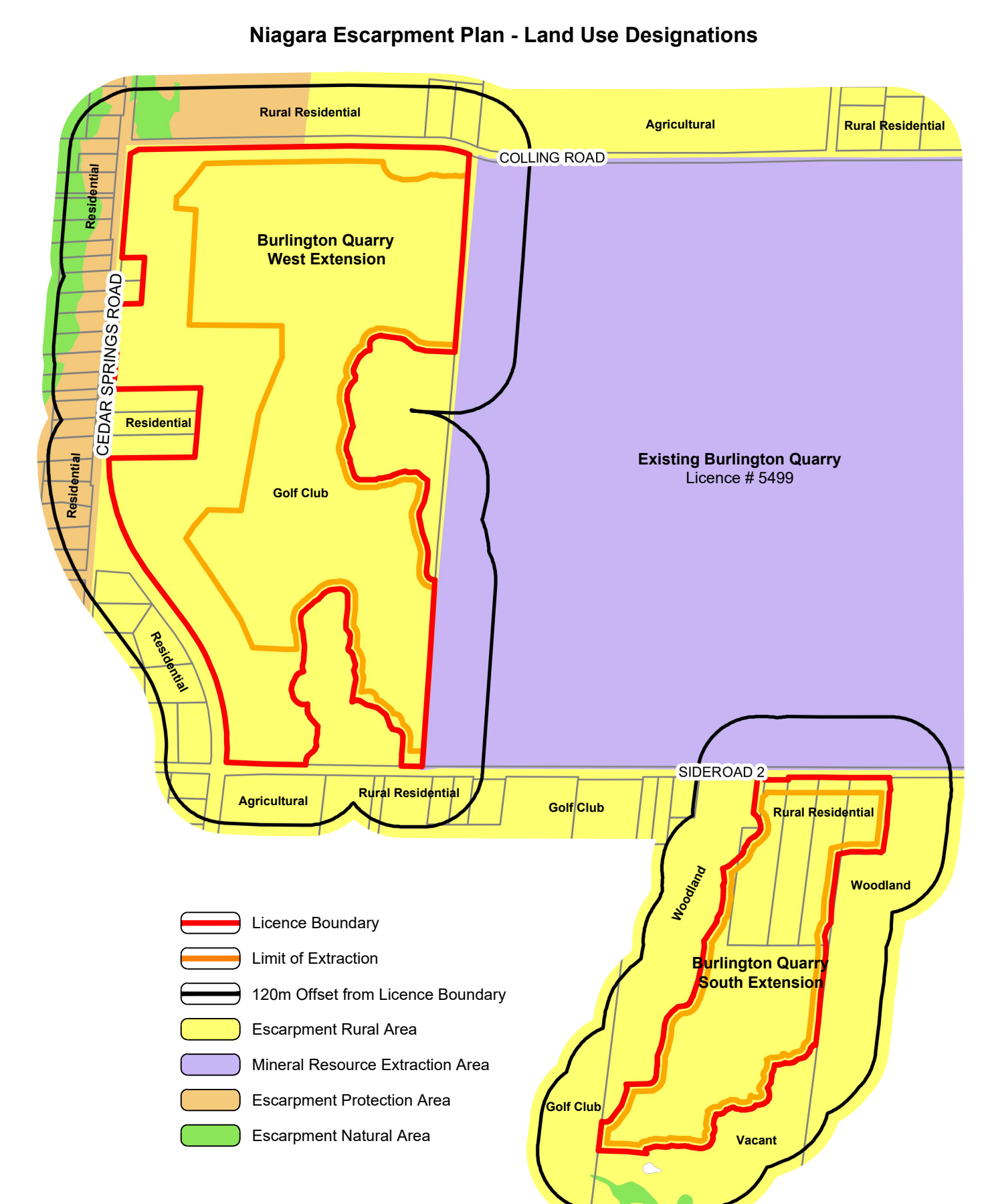
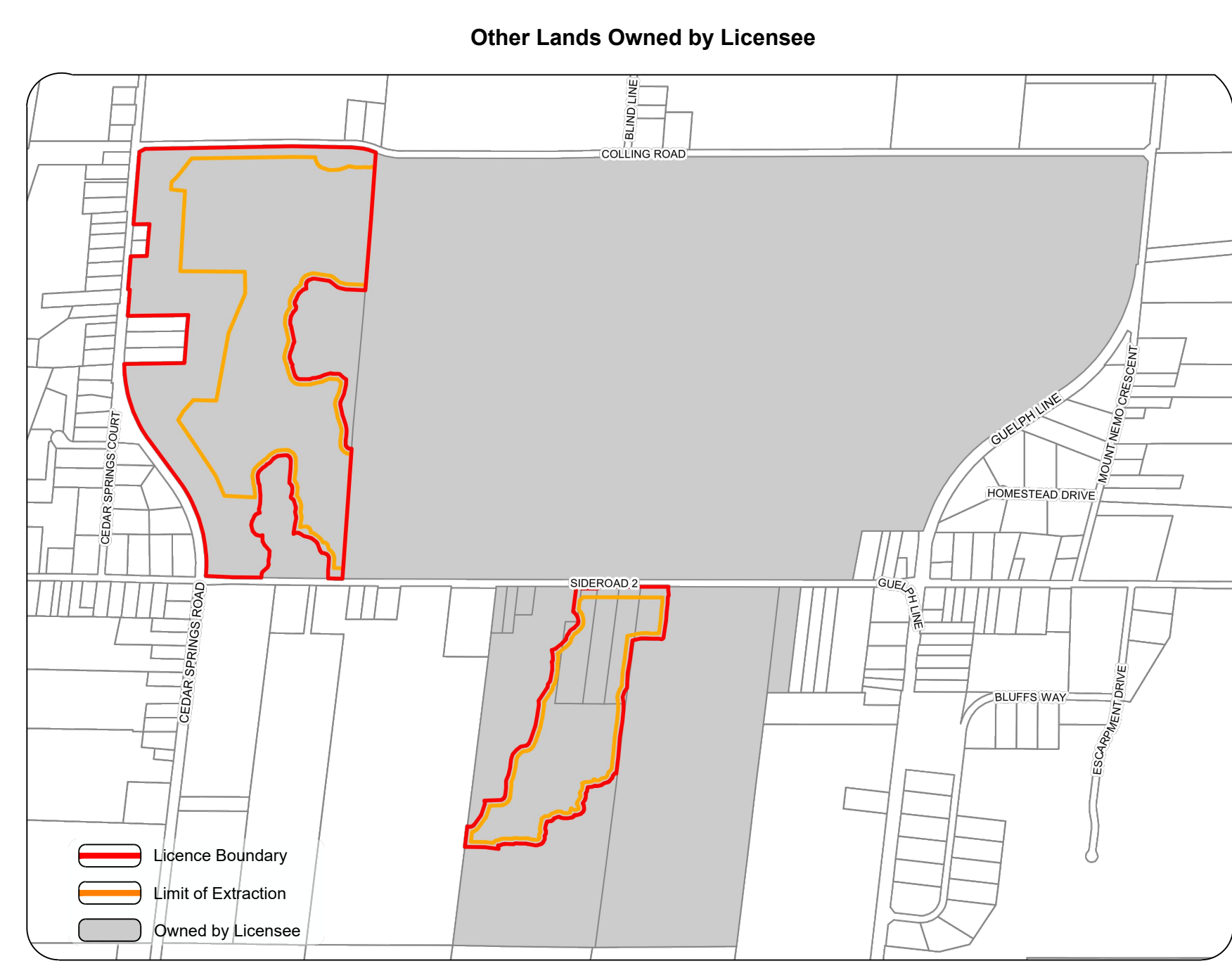
MNR Licence Reference No.: 626477  
 Pre-approval review: April 2021

Plan Scale: 1:3000 (Arch E)  
 Date: April 2021  
 Drawn By: C.P. File No.: 9135D  
 Checked By: B.Z.

File Name: **Existing Features**  
 Drawing No.: **1 of 4**



- A. General**
- This site plan is prepared under the Aggregate Resources Act (ARA) for a Class 'A' Licence, Category 2.
  - Area Calculations:
    - Licence Area (total): 78.4 ha
    - South Extension: 18.3 ha
    - West Extension: 60.1 ha
- B. References**
- Contours were obtained from the City of Burlington's Open Data Catalogue based on 2017 data and are displayed in one metre intervals. Elevations shown are in metres above sea level (masl).
  - Topographic information was obtained from numerous sources including Ontario GeoHub (Land Information Ontario), City of Burlington's Open Data Catalogue, Google Earth Pro aerial photography captured on May 7, 2018 and field investigations for technical reports.
  - All topographic features and structures are shown to scale in Universal Transverse Mercator (UTM) with North American Datum 1983 (NAD83), Zone 17 (metre), Central Meridian 81 degrees west coordinate system.
  - The licence boundaries were established using Municipal Property Assessment Corporation (MPAC) parcel fabric data. Distances are approximate and for reference purposes only.
  - Land use designations on and within 120 metres of the licences are from the Niagara Escarpment Plan, Map 3 - Regional Municipality of Halton, approved June 1, 2017. The Burlington Quarry Extension lands are designated Escarpment Rural Area.
  - Land use information and structures identified on or within 120 metres of the licence boundaries were determined using Google Earth Pro aerial photography captured on May 7, 2018.
- C. Drainage**
- Surface drainage on and within 120 metres of the licence boundaries are by overland flow in the directions shown by arrows on the plan view, or by infiltration.
- D. Groundwater**
- The established groundwater table varies between 264 masl to 273 masl in the South Extension and 263 masl to 265 masl in the West Extension (EarthFX 2020).
- E. Site Access and Fencing**
- There are four existing site accesses on Side Road No. 2 and a single existing site access on Cedar Springs Road.
  - Post and wire fencing (unless noted otherwise) exists in the locations shown on the plan view.
- F. Aggregate Related Site Features**
- There are no existing aggregate operations or features on either Extension such as internal haul roads, processing stockpiles, scrap, fuel storage, berms or excavation faces.
- G. Cross Sections**
- See drawing 4 of 4.
- H. Technical Reports - References**
- Adaptive Management Plan, Proposed Burlington Quarry Extension, EarthFX Inc., Savanta and Tatham Engineering, April 2020.
  - Agricultural Impact Assessment, Nelson Aggregate Co., Burlington Quarry Extension, BCK Environmental Consulting, March 2020.
  - Air Quality Study for Nelson Aggregate Co., Burlington Quarry Extension, BCK Environmental Consulting, March 2020.
  - Archaeological Assessment (Stages 1, 2 & 3), Nelson Aggregates Quarry Expansion, Archaeologic Inc., August 2003.
  - Archaeological Assessment (Stage 4), Nelson Aggregates Quarry Expansion, Archaeologic Inc., August 2004.
  - Stage 1-2 Archaeological Assessment, Proposed West Extension of the Burlington Quarry, Götter Associates, September 2020.
  - Blind Impact Analysis, Burlington Quarry Extension, Epitech Engineering Ltd., April 23, 2020.
  - Cultural Heritage Impact Assessment Report, Burlington Quarry Extension, MacNaughton Hermen Britton Clarkson Planning Limited (MHBC), April 2020.
  - Financial Impact Study, Proposed Burlington Quarry Extension, Nelson Aggregates Co., April 2020.
  - Level 1 and 2 Hydrogeological and Hydrological Impact Assessment Report, Proposed Burlington Quarry Extension, EarthFX Incorporated, April 2020.
  - Level 1 and 2 Natural Environment Technical Report, Proposed Burlington Quarry Extension, Savanta, April 2020.
  - Noise Impact Assessment, Nelson Aggregate Quarry Extension, Howe Gastmeier Chapnik Limited, April 22, 2020.
  - Nelson Aggregate Company, Burlington Quarry Extension Traffic Report, Paradigm Transportation Solutions Limited, February 2020.
  - Surface Water Assessment, Burlington Quarry Extension, Tatham Engineering, April 2020.
  - Visual Impact Assessment Report, Proposed Extension of the Burlington Quarry, MacNaughton Hermen Britton Clarkson Planning Limited (MHBC), April 2020.





**A. General**

- Area Calculations:
  - License Area (total) **76.4 ha**
    - South Extension 18.3 ha
    - West Extension 60.1 ha
  - Limit of Extraction (total) **90.2 ha**
    - South Extension 14.5 ha
    - West Extension 75.7 ha
- The maximum annual forage is 2,000,000.
- The existing golf course use in the West Extension may continue to operate until site preparation for that Extension commences.

**B. Hours of Operation**

- Hours of operation are Monday to Friday from 7:00am to 7:00pm excluding statutory holidays.
- Blasting is permitted Monday to Friday between 8:00am to 6:00pm excluding statutory holidays. Blasting will typically occur once per week but may occur more often based on operational needs.

**C. Site Access and Erection**

- Prior to extraction within the South or West Extension, post and wire fencing (at least 1.2 metres in height) shall be erected and maintained for the life of the extension works. The licence boundary of the West Extension licence boundary shall be exempt from this requirement (see Section O. Variations from Provincial Standards). Where the licence boundary is not fenced, the licensee shall erect and maintain a fence.
- A new operational antitank for this requirement shall be established in the location shown on the plan view (see Section N. Report Recommendations for additional details under Traffic). Material being transferred from the South Extension to existing Licence #5499 (see Section O. Variations from Provincial Standards) shall occur through an at grade roadway crossing at Side Road No. 2 in this location.
- A gate shall be installed at the operational antitank of the West Extension on Side Road No. 2, kept closed during hours of non-operation, and maintained throughout the life of that Extension.
- A gate shall not be required for the fireproofery access located at 2280 and 2015 Side Road No. 2 (see Section O. Variations from Provincial Standards).
- The West Extension shall be accessed through the common licence boundary with existing Licence #5499 in Phases 3 and 5. The locations shown on the plan view are approximate only.

**D. Drainage and Installation Control**

- Drainage of undisturbed areas will continue in the directions shown on drawing 1 of 4.
- Prior to site preparation, an Erosion and Sedimentation Control (ESC) Plan shall be prepared and implemented to the potential for erosion and sedimentation from the operation of the quarry (see Section N. Report Recommendations - Natural Environment note "r").
- Prior to extraction in the West Extension, the infiltration pond located in the west setback (including the diversion/discharge pipe and bottom draw outlet) shall be constructed. The pond shall be excavated to an elevation of 252.7 mast into bedrock. For the portions of the pond which are not excavated, 2.1 slopes shall be established. The purpose of the diversion pipe is to collect water from the west pond to the infiltration pond in the west setback and to provide the discharge in the northwest corner of the site.
- Within the West Extension, the diversion and discharge pipes shall be placed in the locations shown on the plan view (see Section N. Report Recommendations - Natural Environment note "r") for to install the diversion pipe within the west pond). The centreline of the diversion pipe along the north boundary of Phase 5 shall maintain a minimum of 7.0 metres from the Sun-Canadian Pipe Line easement and be installed prior to constructing the berm in this vicinity.
- Prior to removal of the irrigation ponds and irrigation channel in the West Extension, the downstream end of the golf course channel shall be blocked to isolate surface water. If water is to be pumped from the channel to facilitate site preparation, it shall be directed to the existing sump for discharge in accordance with MECP, ECA and PTTW requirements.

**E. Site Preparation**

- All existing structures within the South Extension (including the house and barn located at 2280 Side Road No. 2) and West Extension (including the house and barn located at 2015 Side Road No. 2) shall be demolished prior to extraction in each Extension, in accordance with applicable regulations (see Section N. Report Recommendations - Natural Environment note "r" regarding removal of three structures within the West Extension that contain Barn Swallow habitat).
- No new buildings are proposed for other Extension.
- Timber resources (if any) will be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Stumps, trees, shrubs and brush removal will be used for rehabilitation of this site and Licence #5499 to provide coarse and the wood debris to enhance soils and create habitats during site rehabilitation.
- Topsoil and overburden shall be stripped and stored separately wherever feasible (see Section O. Variations from Provincial Standards).
- Topsoil and overburden shall be placed in perimeter agricultural/woodlands, pond construction or used immediately for progressive rehabilitation in either Extension or existing Licence #5499 (see Section O. Variations from Provincial Standards).
- Excess topsoil and overburden not required for immediate use in berms or rehabilitation may be temporarily stockpiled on the quarry floor. Topsoil and overburden stockpiles shall be located within the limit of extraction and remain a minimum of 30 metres from the licence boundary except where the West Extension quarry abuts existing Licence #5499 and 10 metres from a property with a residential use (see Section O. Variations from Provincial Standards).
- Temporary topsoil and overburden stockpiles which remain for more than one year shall have their slopes vegetated to control erosion.

**F. Berms and Screening**

- Acoustic and visual berms shall be constructed to the heights or elevations specified in the locations shown on the plan view. See Section N. Report Recommendations - Visual Impact Assessment notes and the Typical Acoustic & Visual Berm detail on this drawing for additional information.
- Berm side slopes shall not exceed the following maximums:
  - South Extension
    - Northwest, north and northeast setback + 1:5.1
    - Southeast setback + 2:1
  - West Extension
    - North and west setback + 2:1
    - Southeast setback + 1:5.1
- Berms in the South Extension shall be constructed prior to extraction in that extension.
- Berms in the West Extension shall be constructed prior to extraction in that extension.
- The north foot of the perimeter berm in the West Extension shall not be located within 1 metre of the Sun-Canadian Pipe Line easement.
- Berms shall be vegetated with a native mix of wildflowers and grasses to stabilize slopes and minimize mowing and maintenance. The vegetation on the berms shall be maintained until the berms are removed for rehabilitation.
- Existing vegetation within the setbacks shall be maintained except where acoustic berms, visual berms, ponds or diversion/discharge pipes are required (see Section O. Variations from Provincial Standards). Berms, berms, ponds or diversion/discharge pipes shall be installed in the locations shown on the plan view. Topsoil and overburden shall be placed in the setbacks areas, as shown on the operation schedule, which will also be located in accordance with Section N. Report Recommendations - Natural Environment note "r".
- Setbacks identified as forested setbacks on the plan view shall be forested (see Section N. Report Recommendations - Natural Environment notes "r" and "t" for additional information).

**G. Site Destabilizing**

- During the initial stages of extraction within the South Extension, a temporary setting pond will be constructed within the extraction area (see Phase 2). Once sufficient extraction has occurred in Phase 2, the sump and setting pond will be constructed on the quarry floor. See Adaptive Management Plan for additional details.
- The discharge location for the South Quarry Extension shall be constructed in accordance with Section N. Report Recommendations - Natural Environment note "r".
- For the West Extension, the water will be diverted to existing Licence #5499 and discharged from the existing sump and discharge location.
- The licensee shall operate in accordance with Environmental Compliance Approval (ECA) and Permit to Take Water (PTTW) requirements.

**H. Extraction Sequence**

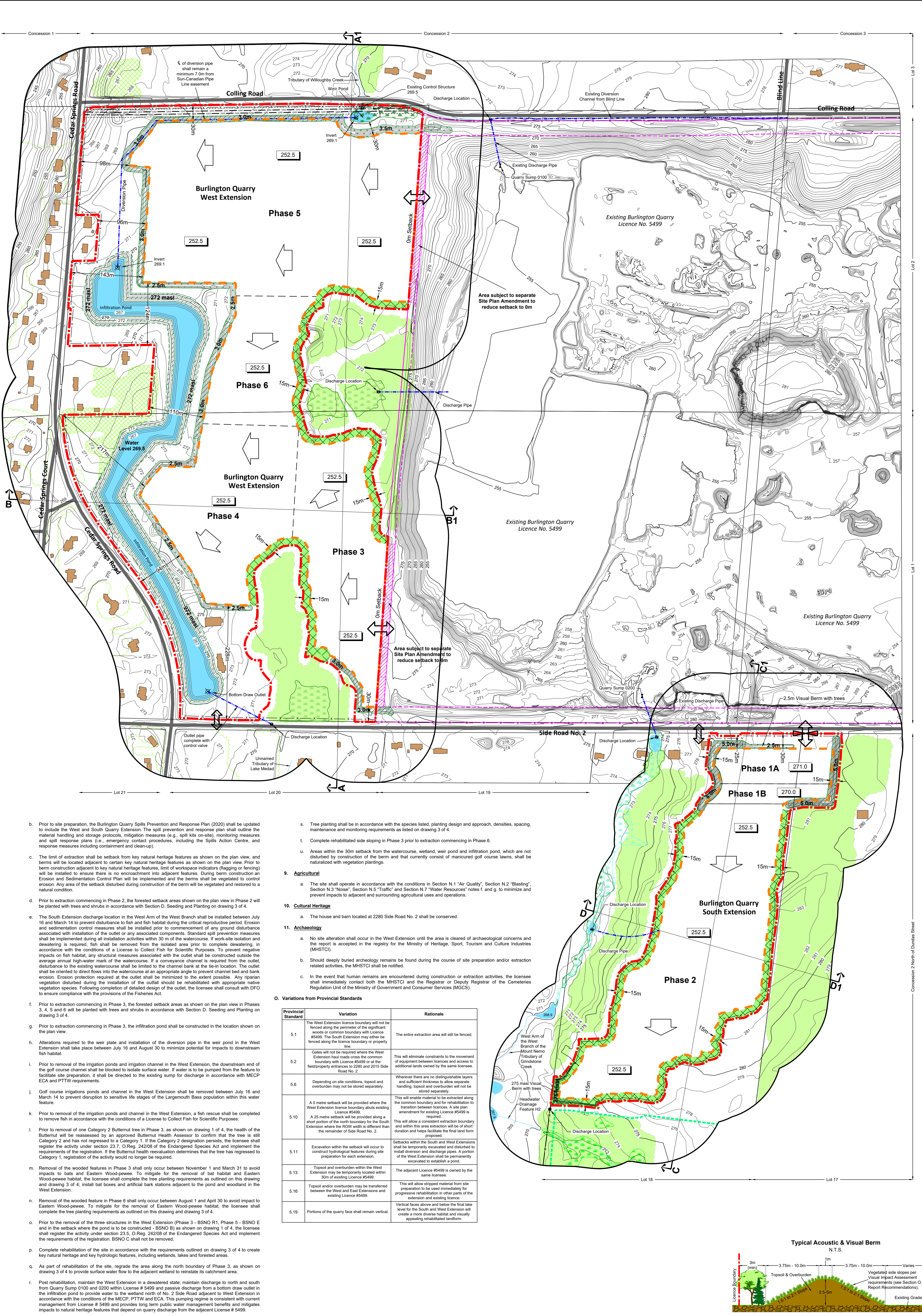
- Phase 1
  - Prepare Phase 1 (South Extension) for extraction and ensure all requirements pertaining to the Extension in Sections C through G of this drawing are met.
  - Strip Phase 1 and construct perimeter berms. Should there be insufficient topsoil to establish in Phase 1 to construct berms, only the amount of material required to complete the perimeter berms and the temporary setting pond may be stripped from Phase 1.
  - Create sinking cut.
  - Construct extraction in a southerly direction and complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - Phase 1A may be extracted to a maximum depth of 272.5 mast.
  - Phase 1B may be extracted to a maximum depth of 270 mast.
  - Prepare Phase 2 for extraction.
- Phase 2
  - Strip Phase 2 in sequence as extraction progresses in a southerly direction.
  - Extract Phase 2 in a southerly direction from Phase 1 and complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - Phase 2 may be extracted to a maximum depth of 252.5 mast.
  - As extraction advances, progress progressive rehabilitation of Phase 2.
  - Prepare Phase 3 (West Extension) for extraction and ensure all requirements pertaining to the Extension in Sections C through G and Archaeology notes "r", under Section N. Report Recommendations, of this drawing are met.
  - Remove wooded features in Phase 3 (see Section N. Report Recommendations - Natural Environment note "r").
- Phase 3
  - Strip Phase 3 and a portion of Phase 4 (if required) to construct perimeter berms in West Extension.
  - Extract Phase 3 by commencing at the common boundary with existing Licence #5499 and proceeding westerly before heading in a northerly direction. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - Phase 3 may be extracted to a maximum depth of 252.5 mast.
  - Complete progressive and final rehabilitation in Phases 1 and 2.
  - Prepare Phase 4 for extraction.
- Phase 4
  - Strip Phase 4 and use the material for progressive rehabilitation in Phase 3 and existing Licence #5499.
  - Extract Phase 4 in a westerly and southerly direction from Phase 3. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - Phase 4 may be extracted to a maximum depth of 252.5 mast.
  - Prepare Phase 5 for extraction.
- Phase 5
  - Strip Phase 5 and use the material for progressive rehabilitation in Phase 4 and existing Licence #5499.
  - Continue progressive rehabilitation in Phases 4 and 5.
  - Extract Phase 5 by commencing at the common boundary with existing Licence #5499 and proceeding in a westerly direction. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - Refer to Section N. Report Recommendations - Blasting for additional requirements regarding the NPC 300 Noise Guidelines at the nearest sensitive receptors.
  - The well contractor will contact the resident with the supply issue and rectify the problem as expeditiously as possible, provided the landowner gives authorization for the work. If the issue raised by the landowner is related to loss of water supply, the licensee will have a consultant/determiner determine the likely causes of the loss of water supply, which can result in a number of factors, including pump failure (owner's responsibility), extended overuse of the well (owner's responsibility) or lowering of the water level in the well from potential quarry interference (licensee expense). This assessment process would be carried out at the expense of the licensee and the results provided to the homeowner.
  - d.f. If it has been determined that the quarry caused a water supply interference, the quarry shall continue to supply water at the licensee's expense until the problem is rectified. The following mitigation measures shall be considered and the appropriate measure(s) implemented at the expense of the licensee:
    - adjust pump pressure;
    - lowering of the pump to take advantage of existing water storage within the well;
    - deepening of the well to increase the available water column;
    - relocation of the well to another area on the property;
    - only at the request of a landowner would a cistern be installed.

**I. Extraction Details**

- The maximum height of a lift shall be 25 metres.
- The maximum depth of extraction for the South Extension is 29.5 metres. Phase 1 shall be extracted in one lift and Phase 2 shall be extracted in a maximum of two lifts.
- The maximum depth of extraction for the West Extension is 23.5 metres and the maximum number of lifts is two.
- Extraction shall be permitted in two Phases simultaneously to allow for transition between Phases.
- Internal haul road locations will vary as extraction progresses and will be located on the quarry floor with the exception of the at grade roadway crossing between the South Extension and existing Licence #5499.
- Blasted aggregate will be transported back to existing Licence #5499 for processing and shipping.
- Berms that encroach within the limit of extraction shall be removed, and the underlying aggregate may be extracted, as part of final extraction for each Extension.

**J. Equipment and Processing**

- Equipment used for site preparation, extraction, pond construction, and site rehabilitation includes drills, front-end loaders, graders, bulldozers, backhoes, conveyors, water trucks, fuel trucks and haul trucks. See Section N. Report Recommendations for additional details from the Noise report regarding equipment.
- No processing shall occur in the South or West Extension. Aggregate extracted in the South and West Extension shall be hauled to existing Licence #5499 for processing.



**Legal Description**  
Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS (former geographic Township of Nelson)  
City of Burlington  
Region of Halton

**Legend**

- License Boundary
- Limit of Extraction
- Contours with Elevation
- Public Road
- Fence
- Jefferson Salamander Regulatory Boundary
- Water Feature
- Significant Woodlands
- Woodlands
- Wooded Feature
- Wetland
- Wetland
- Wetland
- Forested Setbacks
- 120m Offset From Licence Boundary
- Existing Licence
- Parcel Fabric
- Diversion or Discharge Pipe
- Discharge Location
- Sun-Canadian Pipe Line
- Entrance / Exit
- Gate
- General Direction of Excavation & Boundary
- Berm - Acoustic
- Berm - Hydrologic
- Berm - Visual
- Building/Structure
- Quarry Floor
- Cross Sections

**Tree Protection Plan Detail**

- The Tree Protection Zone (TPZ) for woodlands extends the length of the woodland stripline of significant woodlands.
- Prior to site preparation in each Phase, tree fencing shall be erected along the fence line between the licence boundary and the strip line of the significant woodlands in a TPZ. The TPZ to prevent damage and soil compaction with the TPZ.
- Fencing material shall consist of orange plastic, white snow fencing and/or page wire fencing with reflective tape.
- Fencing material shall be installed a minimum 1.2 metres in height above grade.
- Storage shall be located in visible locations along the perimeter of each TPZ fence and be a minimum 25m x 30m. Each site shall clearly display the best practices to the right.
- The TPZ must remain fully intact and shall not be used for temporary storage of fill, topsoil, building materials, equipment storage, loading of equipment, or dumping of any construction materials.
- Where appropriate within the TPZ necessary to facilitate construction of the discharge pipe, tree removal shall be kept to a minimum and the disturbed soil shall be restored with weed-free topsoil. In this location a walk will be maintained to provide access to the discharge location.

**Site Plan Amendments**

No.	Date	Description	By
1	September 2020	Adjust pond adjacent to dwelling in the southwest corner of the West Extension.	CAP
2	April 2021	Update notes per MNRF feedback. Added discharge watercourse to plan view. Updated legend to include Tree Protection Plan detail. Included MNRF setbacks for South Extension.	CAP

**Site Plan Revisions (Pre-Licensing)**

No.	Date	Description	By
1	September 2020	Adjust pond adjacent to dwelling in the southwest corner of the West Extension.	CAP
2	April 2021	Update notes per MNRF feedback. Added discharge watercourse to plan view. Updated legend to include Tree Protection Plan detail. Included MNRF setbacks for South Extension.	CAP

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**MNRF Approval Stamp**      **MHBC Stamp**

**DRAFT**

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phone: (905) 335-2520

**Project**      **Burlington Quarry Extension**

**MNRF Licence Reference No.**      **Pre-approval review:**  
626477      **Date**      **File No.**  
**Drawn By**      **Checked By**  
C.P.      B.Z.

**Plan Scale:** 1:3000 (A3/E)      **Date**      **File No.**  
0      100      200      **Drawn By**      **Checked By**  
Meters      C.P.      B.Z.

**File Name**      **Operational Plan**

**Drawing No.**      **2 of 4**

**File Path**      N:\Bentley\3350-Nelson-Project\Drawings\Drawings\ARA\_Site\_Plan\Operational\_Site\_Plan\CAD\9135D - Site Plan - Backdrop - April 19, 2021.dwg



**Legend**

	Licence Boundary		120m Offset From Licence Boundary
	Limit of Extraction		Existing Licence Existing Line of Extraction (solid line) Existing Line of Extraction (dashed line)
	Contours with Elevation		Parcel Fabric
	Public Road		Diversion or Discharge Pipe Proposed - Double Dash
	Fence 1.2m post & wire fence unless otherwise noted		Discharge Location
	Water Feature		Sun-Canadian Pipe Line Pipe location and easement
	Lake / Pond Licence # 5499		Jefferson Salamander Regulatory Boundary
	Significant Woodlands		Entrance / Exit Field / Property
	Woodlands		Gate
	Wooded Feature		Building/Structure
	Wetland Swale		Proposed Final Grade and Slope
	Wetland MNRP - Provincially Significant		Final Elevation of Land and Lake (M.A.S.L.)
	Wetland MNRP - Unvaluated		Cross Sections

**Site Plan Amendments**

No.	Date	Description	By

**Site Plan Revisions (Pre-Licensing)**

No.	Date	Description	By
1.	September 2020	Adjust pond adjacent to dwelling in the southwest corner of the West Extension.	CAP
2.	April 2021	Included MNRP wetlands for South Extension. Updated notes per MNRP feedback. Located herein.	CAP

**MNRP Approval Stamp**

**MHBC Stamp**

**MHBC**  
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 & LANDSCAPE  
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**DRAFT**

**Applicant**

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 phone: (905) 335-5250

**Project**  
**Burlington Quarry Extension**

<b>MNRP Licence Reference No.</b> 626477	<b>Pre-approval review:</b>
<b>Plan Scale:</b> 1:3000 (Arch E)	<b>Date:</b> April 2021
<b>Drawn By:</b> C.P.	<b>File No.:</b> 9135D
<b>Checked By:</b> B.Z.	

**File Name**  
**Rehabilitation Plan**

**Drawing No.**  
**3 of 4**

**File Path**  
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- Progressive Rehabilitation**
- A. General**
- Area Calculations:
    - To be extracted (total): 50.2 ha
      - South Extension: 14.0 ha
      - West Extension: 36.2 ha
    - To be rehabilitated (total): 50.2 ha
      - South Extension: 14.0 ha
      - West Extension: 36.2 ha
- B. Phasing**
- An excavation reaches the limit of extraction or maximum depth, progressive rehabilitation shall commence.
  - Progressive rehabilitation shall follow the direction and sequence of extraction identified on the plan view and described in the notes on drawing 2 of 4.
  - Prior to extraction commencing in Phase 6, side sloping within Phase 3 shall be completed.
- C. Slopes and Grading**
- Progressive rehabilitation will utilize a variety of rehabilitation techniques including:
    - Backfilling extraction faces and quarry floors;
    - Partially backfilling extraction faces to create a cliff with talus slope; or
    - Leaving extraction faces vertical.
  - Excess soil, in accordance with MECP "Excess Soil Regulation" (O. Reg. 406/19), as may be amended from time to time, may be imported to facilitate the establishment of 3:1 and 2:1 (horizontal) vertical slopes on the quarry faces and/or applied to the quarry floors to achieve the final contour elevations shown on the plan view. The licensee must ensure that the material is leached at the source, before it is deposited on-site, to ensure that the material meets the MECP's criteria under Table 1 of MECP's Soils, Ground Water and Sediment Standards for use under Part 1 of the Environmental Protection Act. Sampling results will be provided to the MNRP upon request.
  - Notwithstanding Condition 1, where the imported material is not being placed within 1.0 metres of the surface, the criteria under Table 1 for sodium absorption ratio and electrical conductivity do not have to be met.
  - The final rehabilitated landforms established in the South and/or West Extension using the rehabilitation techniques will consist of lakes, islands, shoreline wetlands, vernal pools, beach, pond, woodlands, gradually sloping grades, 2:1 and 3:1 side slopes, cliff with talus slopes, and vertical faces as shown on the plan view.
  - Beach sand may be imported to establish the beach area in the South Extension.
  - As part of rehabilitation of the site, regrade the area along the north boundary of Phase 3, as shown on this drawing to provide surface water flow to the adjacent wetland to reestablish its catchment area.
- D. Seeding and Planting**
- The side slopes and backfilled portions of the quarry floor will be seeded with the Ministry of Transportation's (MTO) Ontario Roadside Seed Mix (Cheeping Grass, Kentucky Bluegrass, Perennial Ryegrass and White Clover) or equivalent.
  - Forbs, wetlands, and tree plantings as identified in the plan view shall be planted in accordance with Table 1: Rehabilitation Plant List Recommendations on this drawing.
  - The planting design and approach will be guided by the Conservation Halton Landscaping and Tree Preservation Guidelines (2010).
  - Planting densities shall be determined based on the restoration objectives and presence/balance of existing natural features. For example, planting densities will be higher where the objective is to restore/establish a woodland, and meet the definition of woodland under the Forestry Act, but may be reduced (where objective is to establish a buffer adjacent to a rehabilitated area). The type of species planted will also be dependent on adjacent habitat (e.g., greater reliance on shrub plantings when restoration occurs adjacent to a meadow, and tree plantings when planting next to woodland).
  - Where the restoration objective is the establishment of a woodland, trees will be planted at a minimum density of 10 trees per 100 m<sup>2</sup> in order to account for competition, stress or wildlife damage and to meet the definition of woodland under the Forestry Act. Within this area, the ratio to tree ratio will be 5:1, with trees planted no closer than 2.0 m on centre and shrubs planted between 0.75 m and 1.5 m apart.
  - Where the restoration objective is the establishment of a setback adjacent to a natural feature, planting densities will be dependent on the features they abut (e.g., densities will be higher when planting next to an existing forest relative to the densities when planting next to an anthropogenic or cultural feature). The planting design of a natural feature will follow a 3-band approach, where woody planting densities will be highest within Band 1 (closest to the existing adjacent feature) and reduced in Band 2. No woody species will be planted in Band 3, which will be seeded with a soil and moisture-appropriate native seed mix. Where trees will be planted, the following planting densities will be applied: Band 1 - five trees per 100 m<sup>2</sup>. Where shrubs are also being proposed, these will be planted at a shrub to tree ratio of 5:1. Band 2 - three trees per 100 m<sup>2</sup>. Where shrubs are also being proposed, these will be planted at a shrub to tree ratio of 5:1.
  - Competing herbaceous vegetation will be controlled by placing mulch around each planted tree or shrub (50 cm radius of mulch around each planting). Rodent protection will be installed as necessary. Where access permits, planting will be watered during periods of drought (defined as a 30 day period between May and September with less than 50mm of precipitation) until establishment has occurred.
  - For planting in areas not extracted, plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. "Free-to-grow" is a condition in which the plantings are 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 1000 trees per hectare. If survival is less than 1000 "free-to-grow" condition trees per hectare, additional planting will take place.
  - For plantings in areas extracted, plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. "Free-to-grow" 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 1000 trees per hectare. If survival is less than 1000 "free-to-grow" condition trees per hectare, additional planting will take place.
- E. Drainage**
- Final surface drainage will follow the rehabilitated contours and directional arrows shown on the plan view.
  - Once the South Extension is depleted, pumping will cease and portions of the site below the ground water table will fill with water.
  - Runoff within the South Extension will drain into the lake.
  - Construct overflow outlet in the southwest corner of the South Extension.
  - Once the West Extension is depleted, the West Extension will remain in a dewatered state. Runoff within the West Extension will either drain north towards the lake or southeast into existing Licence #5499.
  - During rehabilitation the licensee shall maintain discharge to fish habitat to the north and south from Quarry Sump 0100 and 0200 with Licence #5499 and passive discharge from Licence #5499 to provide long term public water management benefits and mitigate impacts on natural heritage features which depend on quarry discharge from the adjacent Licence #5499.
  - During rehabilitation the licensee shall operate in accordance with the conditions of the MECP, PTTW and EGA for the ongoing dewatering of the site. This pumping regime is consistent with current management from Licence #5499 and provides long term public water management benefits and mitigates impacts to natural heritage features that depend on quarry discharge from the adjacent Licence #5499.
  - The licensee has committed to conveying the site into public ownership and to maintain the West Extension in a dewatered state by maintaining the pumping regime from Licence #5499 to provide long term public water management benefits and mitigate impacts on natural heritage features which depend on quarry discharge from the adjacent Licence #5499.
- F. Adaptive Management Plan**
- During progressive rehabilitation, until surrendering the licence, the licensee is required to operate in accordance with the Adaptive Management Plan, prepared by Earth Inc., Savaris and Tatham Engineering, dated April 2020, as may be amended from time to time with approval from MNRP, in consultation with NEC, Region of Halton, City of Burlington and Conservation Halton.

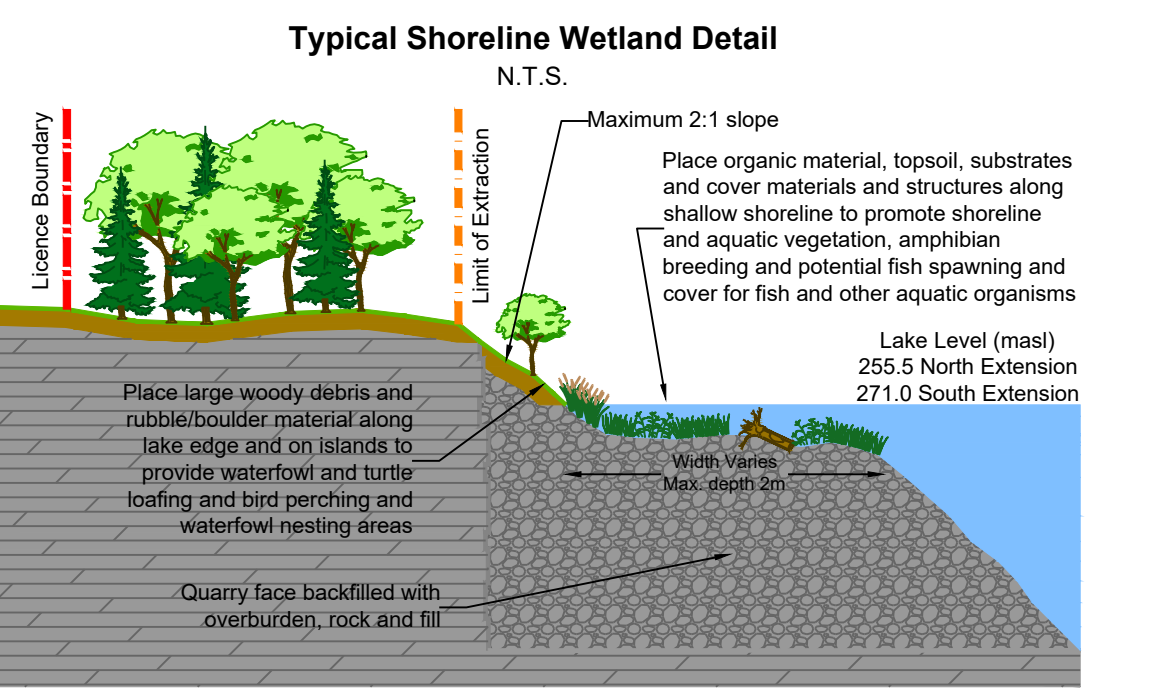
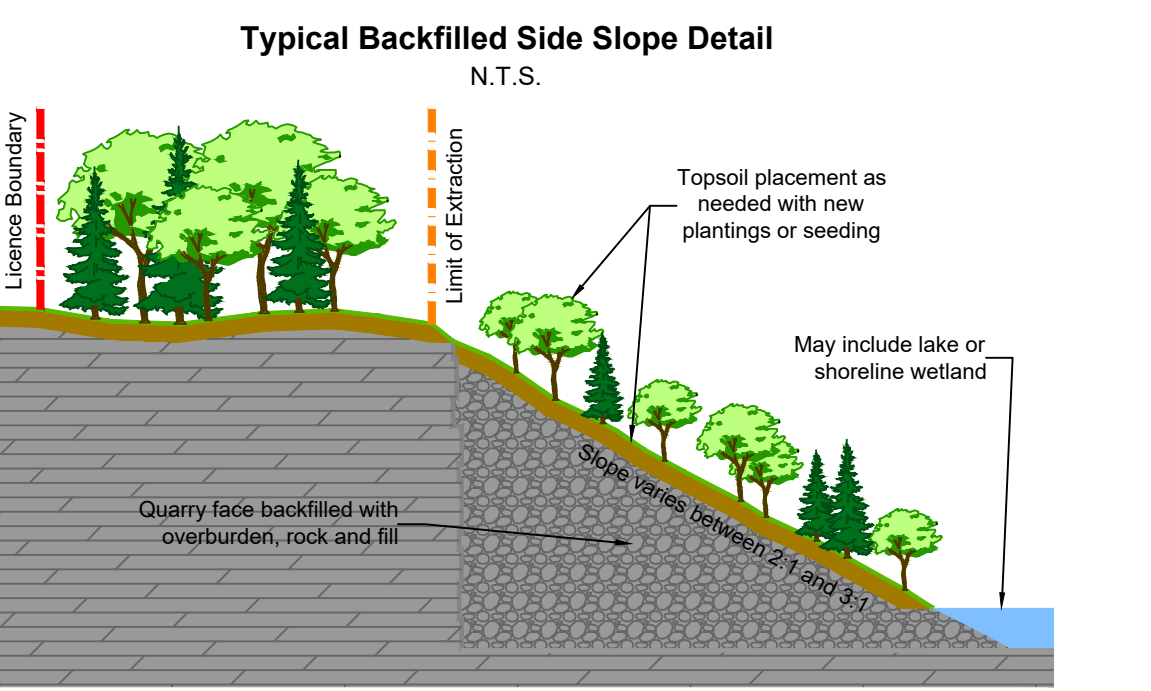
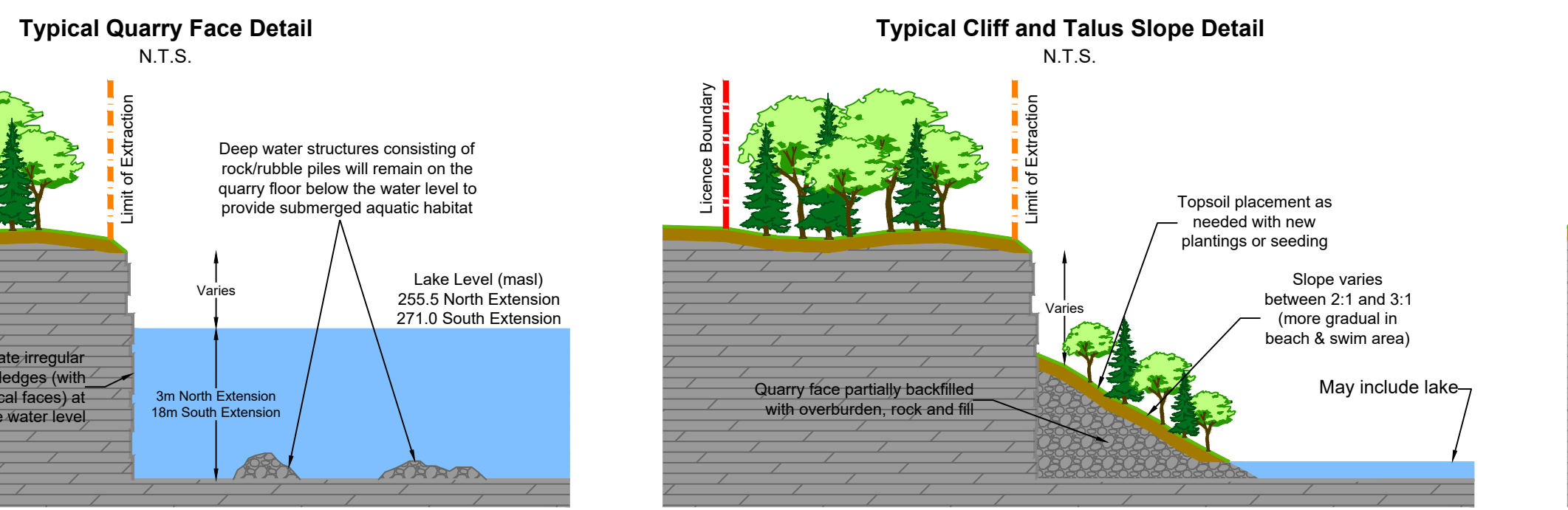
- Final Rehabilitation**
- A. General**
- All equipment shall be removed from the South and West Extension.
  - No internal haul roads shall remain in either Extension.
  - The residence and barn at 2280 Side Road No. 2 in the South Extension shall remain.
  - The residence and barn located at 2015 Side Road No. 2 in the southwest corner of the West Extension shall remain.
  - A field property access entrance shall remain to access the residence and barn located at 2280 and 2015 Side Road No. 2.
  - The groundwater table post rehabilitation varies between 263.5 msl to 271 msl in the South Extension and 265.5 msl to 268 msl in the West Extension (MNRP 2020) or 420 msl if the West Extension is not maintained in a dewatered state.
  - The licensee, prior to the surrender of the licence, shall complete a Record of Site Condition for the Extensions in accordance with the Environmental Protection Act.
  - Prior to the surrender of the Aggregate Resource Act Licence, the licensee shall define the transition of the site to another party and the pre-requisite for licence surrender to the satisfaction of the MNRP.

**Table 1: Rehabilitation Plant List Recommendations**

Location	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATION	WETNESS INDEX	OWES WETLAND SPECIES	PROVINCIAL STATUS (IRPA RANK)	LOCAL STATUS (IRPA RANK)
Pond/Wetland (PW)							
Gradual Grade/Side Slope with Trees (GS)							
Forested Setback During Operation (FSO)							
Forested Setback Post-Berm (FSB)							
Restored to Existing Grade and Forested (REG)							
Pond/Wetland (PW)							
Gradual Grade/Side Slope with Trees (GS)							
Forested Setback During Operation (FSO)							
Forested Setback Post-Berm (FSB)							
Restored to Existing Grade and Forested (REG)							

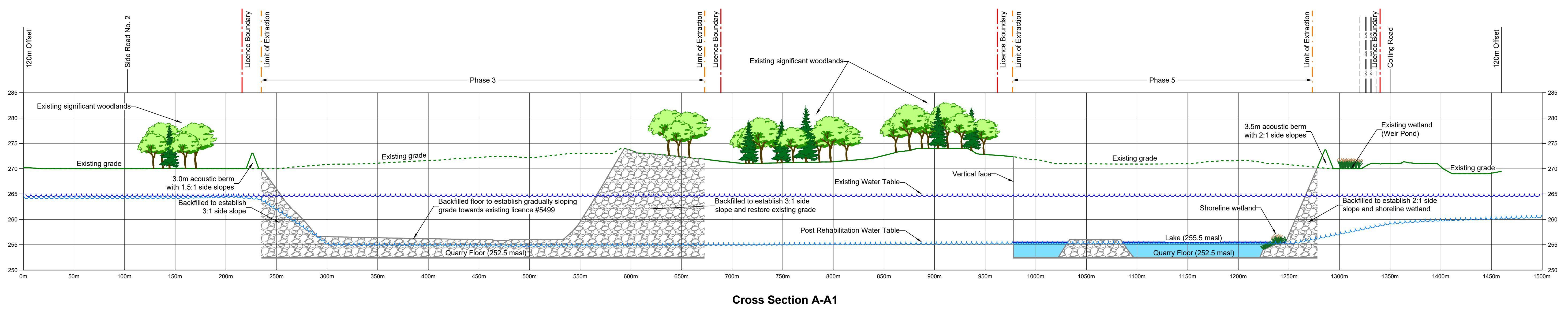
Herbaceous and moss will be applied where appropriate (e.g. full sun/bark is deemed suitable). Potential moss could include Upland Dry Meadow Mix, Early Succession/Regeneration Mix, and Meadow Marsh Mix, following Conservation Halton guidelines.

A nurse crop will be applied to exposed soil, the species of which will depend on season of application but will follow Conservation Halton guidelines.

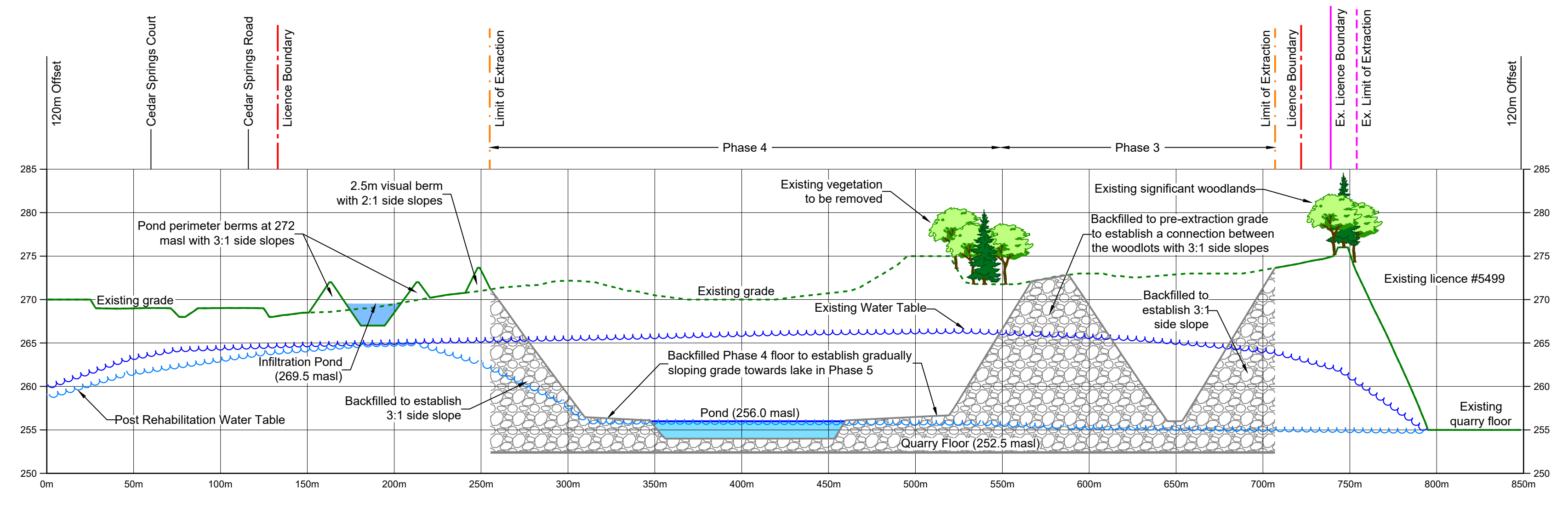




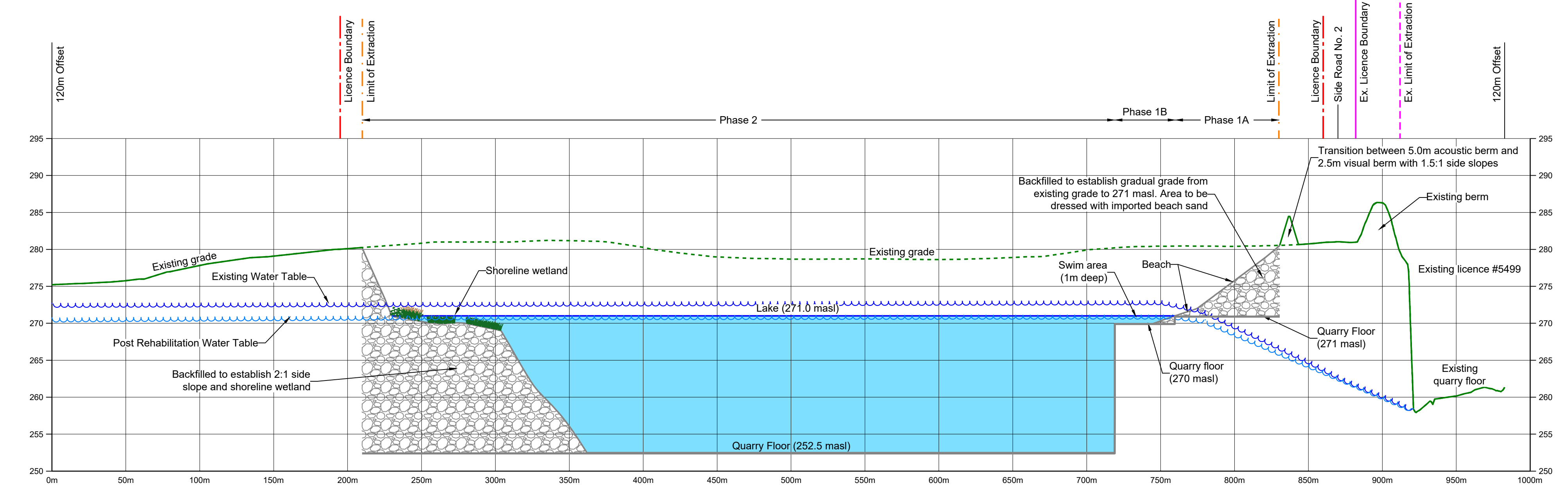
- Legend**
- Licence Boundary
  - Limit of Extraction
  - Existing Licence
  - Existing Limit of Extraction
  - 120m Offset From Licence Boundary
  - Existing Grade - Removed / Altered
  - Existing Grade - Undisturbed
  - Quarry Floor / Face
  - Berm
  - Existing Water Table
  - Post Rehabilitation Water Table
  - Backfilled
  - Lake or Pond



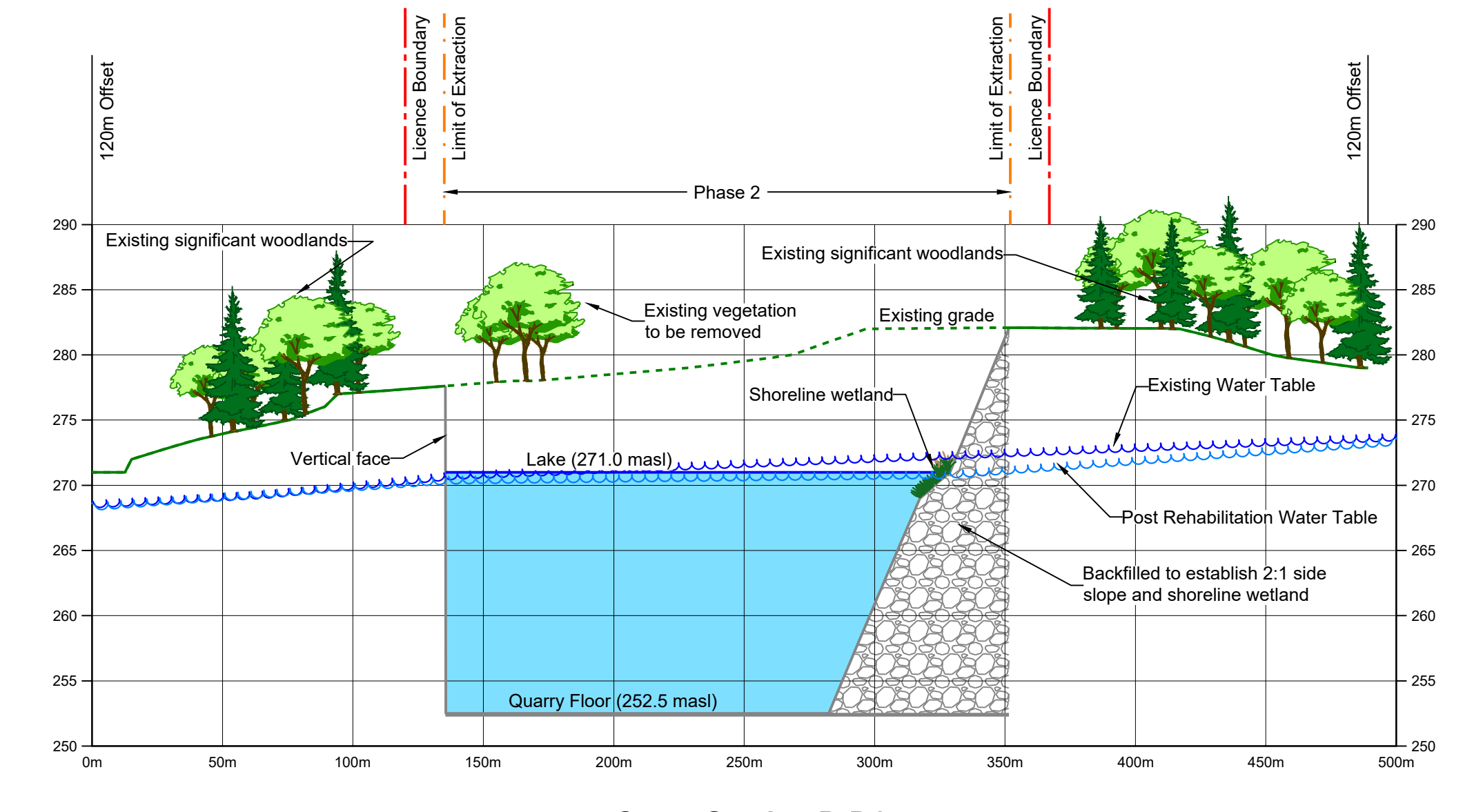
**Cross Section A-A1**



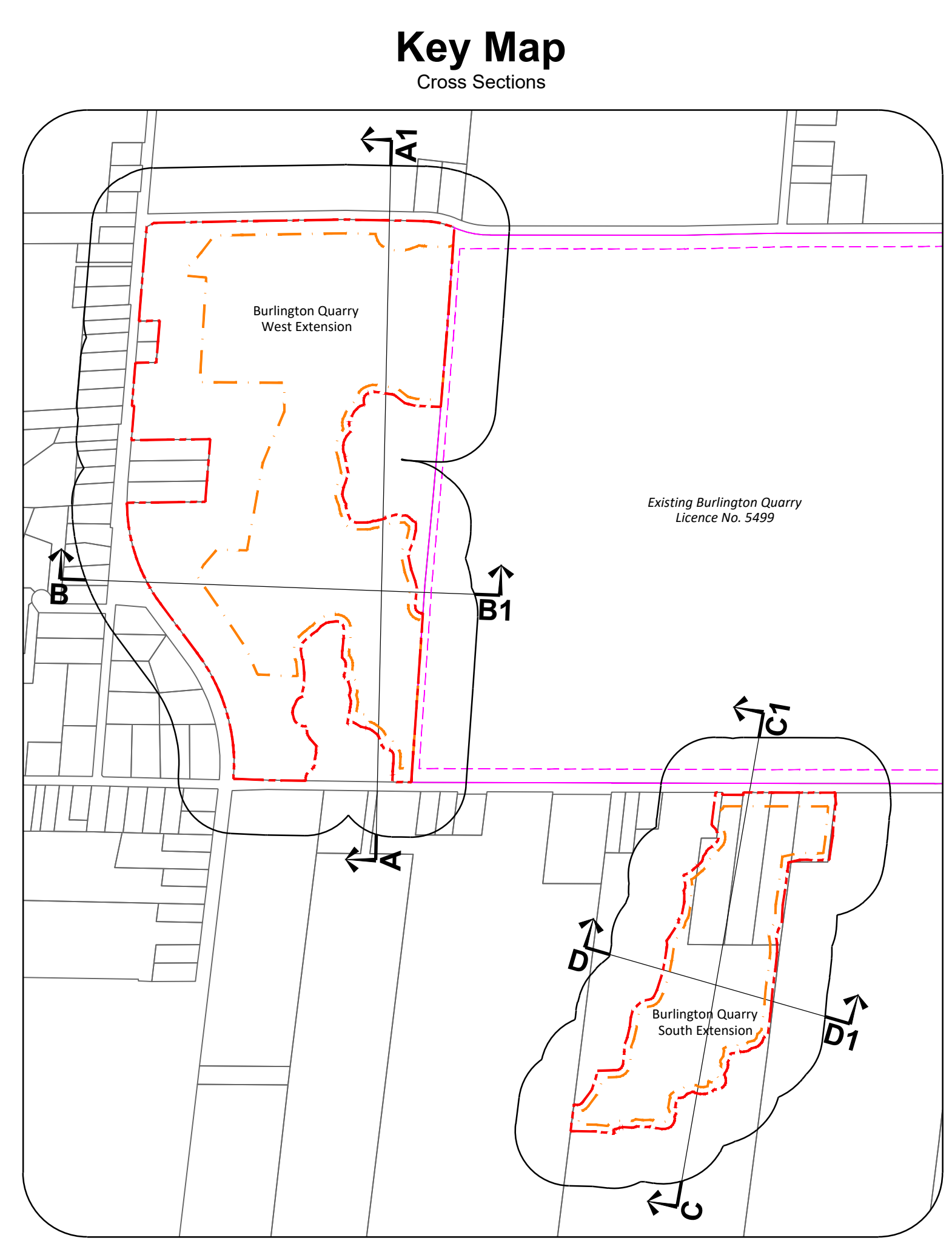
**Cross Section B-B1**



**Cross Section C-C1**



**Cross Section D-D1**



**Site Plan Amendments**

No.	Date	Description	By

**Site Plan Revisions (Pre-Licensing)**

No.	Date	Description	By
1	April 2021	Added additional cross section labels for clarity	CAP

**MHBC**  
 PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE  
 113 COLUER STREET, BARRE, ON, L4M 1H2 | P: 705.728.0245 F: 705.728.2010 | WWW.MHBCPLAN.COM

MNRF Approval Stamp: **DRAFT**

Applicant: **NELSON AGGREGATE CO.**  
 2433 No. 2 Bypass Rd.  
 P.O. Box 1070, Burlington, Ont. L7R 4L8  
 phone: (905) 335-5250

Project: **Burlington Quarry Extension**

MNRF Licence Reference No. 626477	Pre-approval review: Date: April 2021
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Plan Scale: Horizontal 1:2000 Vertical 1:400	Drawn By: C.P. Checked By: B.Z.	File No.: 9135D
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File Name: **Cross Sections**

Drawing No.: **4 of 4**