

- A. General**
- This Site Plan is prepared under the Aggregate Resources Act for a Class A Licence for a quarry below the ground water table.
  - Areas to be licensed  
103.6 ha. (±256.0 ac.)  
Areas to be extracted  
89.1 ha. (±220.2 ac.)

- B. References**
- Contour information was obtained from a topographic survey prepared by TEC Engineering (formerly Renshaw (Canada) Limited) using October 2016 and February 2017 aerial photography 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 Geomatics (Land Information Ontario), Google Earth Pro aerial photography captured on July 18, 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.
  - Property boundaries were obtained from a Plan of Survey prepared by Matthew, Cameron, Heywood-Kerry T. Howe Surveying Ltd. dated April 5, 2012. Other property boundaries were established using Municipal Property Assessment Corporation (MPAC) parcel fabric data.
  - Zoning categories on or within 120 metres of the licence boundary are from the City of Niagara Falls Zoning By-law No. ZS-200 (Schedules A3 and A4 - Consolidation April 2015).
  - Land use information on or within 120 metres of the licence boundary has been compiled from October 2016 orthophotography, site visits and water well survey data.

- C. Groundwater**
- The maximum predicted water table is 184.9 masl and the contact aquifer potentiometric contours ranges between 176.0 and 184.9 masl (as per WSP's "Proposed Upper's Quarry - Maximum Predicted Water Table Report", dated October 2021).
- D. Drainage**
- Existing surface water drainage on and within 120 metres of the licence boundaries are by overland flow in the direction shown by arrows on the plan view.

- E. Site Access and Fencing**
- There are two (2) existing site accesses on Thorold Townline Road, six (6) existing site accesses on Upper's Lane, and three (3) existing site accesses on Beechwood Road.
  - Post and wire fencing (unless otherwise noted) exists in the locations shown on the plan view.

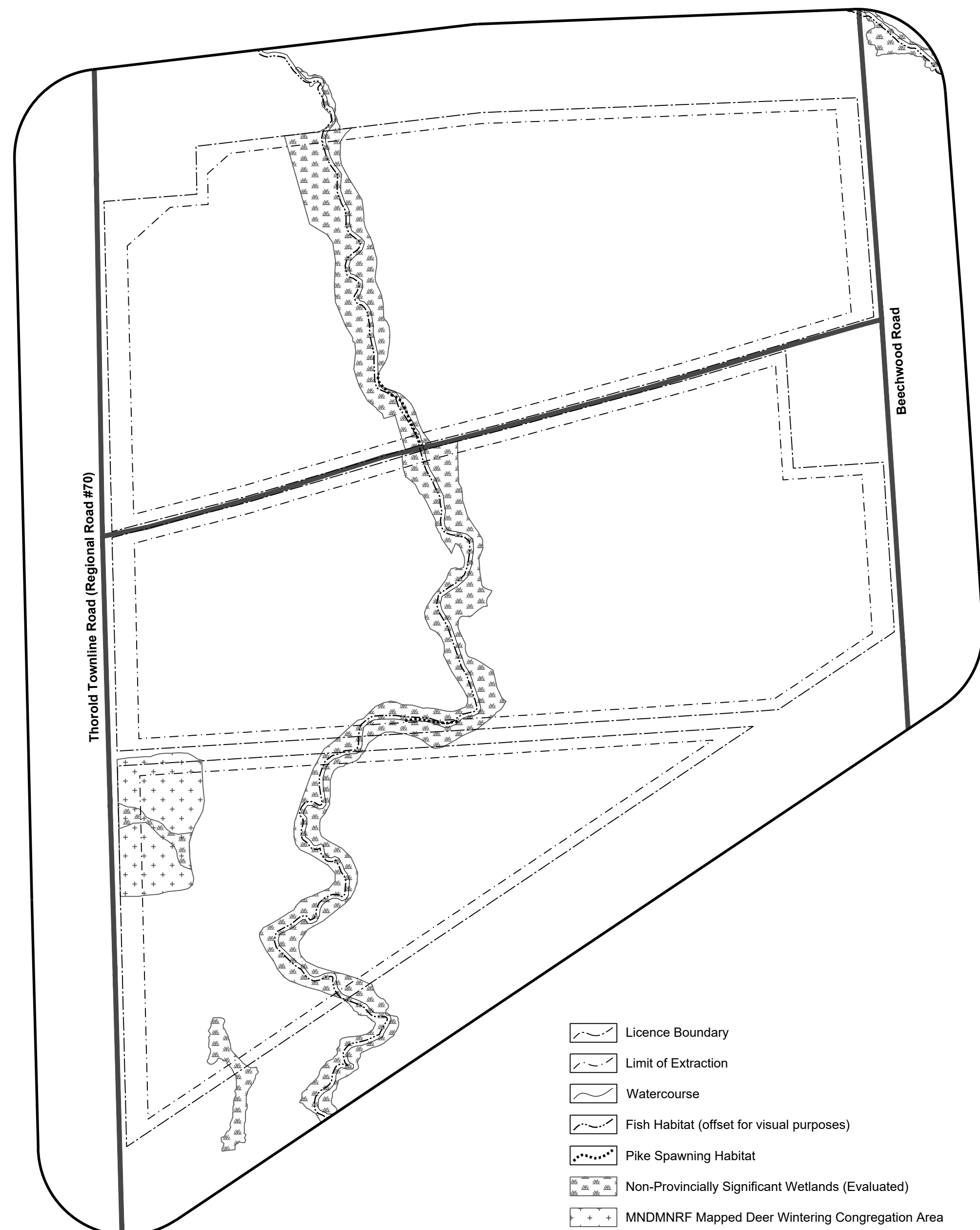
- F. Significant Features**
- All significant natural features on and within 120 metres of the licence boundary are shown on the Key Natural Heritage Features Schematic on this drawing.
  - All significant human-made features on and within 120 metres of the licence boundary are shown on the plan view.

- G. Aggregate Related Site Features**
- There are no existing aggregate operations or features within the licence boundaries such as stationary or portable equipment, stockpiles, recyclable materials, scrap, fuel storage, haul roads, berms or excavation faces.

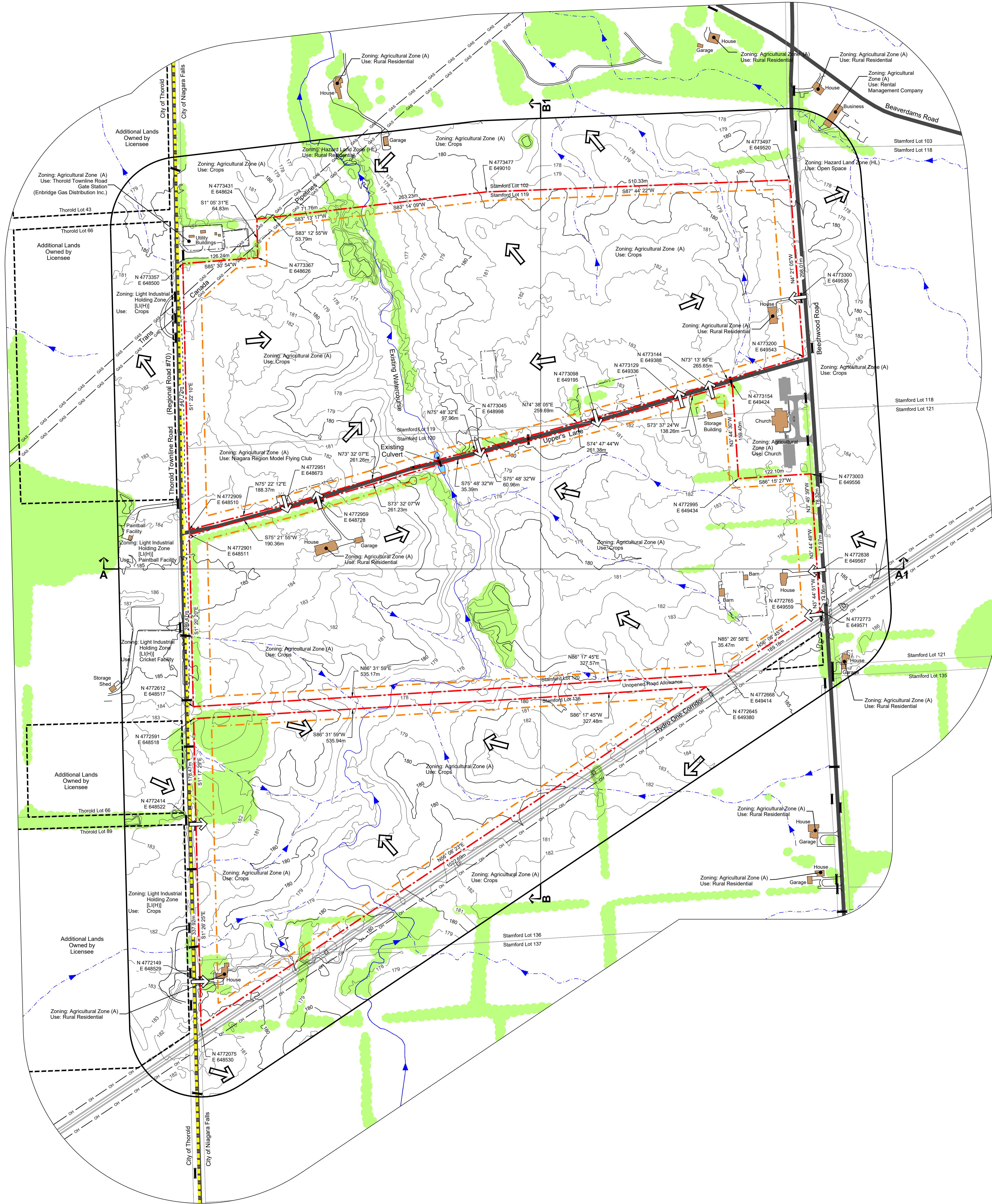
- G. Technical Reports - References**
- Upper's Quarry: Acoustic Assessment Report, RWDI, October 2021.
  - Agricultural Impact Assessment for Upper's Quarry, Colville Consulting Inc., October 2021.
  - Upper's Quarry: Air Quality Assessment, RWDI Air Inc., October 2021.
  - Archaeological Assessments:
    - Stage 1 Archeological Resource Assessment of Walker Aggregates Proposed South Niagara Quarry, Part of Lots 102, 119, 120, 136 & 137, Archeological Services Inc., December 2008.
    - Stage 1-2 Archeological Assessment of Part 9764 Upper's Lane, Part of Lots 119 & 120, Archeological Assessments Ltd., November 3, 2005.
    - Stage 2-3 Archeological Assessment, Part of Lots 102, 119, 120, 136 & 137, Archeological Assessments Ltd., November 21, 2012.
    - Stage 1-2 Archeological Assessments, Upper's Quarry Additional Lands, Part of Lots 1188, 120, Archeological Research Associates Ltd., April 20, 2020.
    - Stage 3 Mitigation of Development Impacts, Final Excavation Report, Walker XI (AgGT-411), Upper's Quarry, Archeological Research Associates Ltd., May 28, 2021.
    - Stage 4 Mitigation of Development Impacts, Final Excavation Report, Walker XI (AgGT-178), Upper's Quarry, Archeological Research Associates Ltd., July 22, 2021.
  - Blast Impact Analysis, Upper's Quarry, Explotech, October 2021.
  - Cultural Heritage Impact Assessment Report, Proposed Upper's Quarry, MHBC, October 2021.
  - Economic Benefits Analysis, Prism, October 2021.
  - Level 2 Water Study Report, WSP, October 2021.
  - Maximum Predicted Water Table Report, WSP, October 2021.
  - Upper's Quarry, Niagara: Level 1 and Level 2 Natural Environment Technical Report and Environmental Impact Study, Stantec, October 2021.
  - Planning Justification Report and Summary Statement, MHBC, October 2021.
  - Traffic Impact Study, Upper's Quarry, TMIG, October 2021.
  - Visual Impact Assessment, Proposed Upper's Quarry, MHBC, October 2021.

**Key Natural Heritage Features Schematic**

Scale 1:5000  
0 150 300  
Meters



- Licence Boundary
- Limit of Extraction
- Watercourse
- Fish Habitat (offset for visual purposes)
- Pike Spawning Habitat
- Non-Provincially Significant Wetlands (Evaluated)
- MNDMNR Mapped Deer Wintering Congregation Area



**Legal Description**

Part of Lots 119, 120, 136 & 137  
City of Niagara Falls (Geographic Township of Stamford)  
Regional Municipality of Niagara

- Licence Boundary
- Limit of Extraction
- Additional Lands Owned by Licensee
- Municipal Boundary
- Contours with Elevation  
Metres above sea level (MASL)
- Public Road
- Fence  
1.2m post & wire fence unless otherwise noted
- Watercourse  
Direction of flow indicated by arrows
- Surface Drainage Feature  
Direction of flow indicated by arrows
- Water Feature
- Wooded Area
- 120m Offset From Licence Boundary
- Parcel Fabric
- Trans Canada Pipeline Easement
- Hydro One Easement
- Existing Site Access
- Direction of Surface Drainage
- Existing Culvert
- Building/Structure
- Cross Sections

**Site Plan Acronyms**

- ARA - Aggregate Resources Act
- MNDMNR - Ministry of Northern Development, Mines, Natural Resources and Forestry
- MHSTCI - Ministry of Heritage, Sport, Tourism and Culture Industries
- MECP - Ministry of the Environment, Conservation and Parks
- MGCS - Ministry of Government and Consumer Services
- DFO - Department of Fisheries and Oceans Canada
- ECA - Environmental Compliance Approval
- BMPP - Best Management Practices Plan
- PTTW - Permit to Take Water
- MASL - Metres above sea level
- ROW - Right of way
- HMA - Hot mix asphalt

**Site Plan Amendments**

No.	Date	Description	By

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

No.	Date	Description	By
1	January 2022	Add Key Natural Heritage Features Schematic and Section F to the site plan index	C.P.

**MHBC Stamp**

**MHBC Stamp**

**PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE**

113 COLLIER STREET, BARRE, ON, LAM 1H2 | P: 705.728.0445 F: 705.728.2010 | WWW.MHBCPLAN.COM

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**Applicant**

**walker aggregates**

Walker Aggregates Inc.  
2800 Thorold Townline Road  
P.O. Box 100  
Thorold, Ontario  
L2V 3Y8

**Project**

**Upper's Quarry**

**MNDMNR Licence Reference No.**

**Applicant's Signature**

**Plan Scale:** 1:3000 (Arch E)

**Date:** October 2021

**Drawn By:** C.P. **File No.:** 9811V

**Checked By:** D.W.

**File Name:** Existing Features

**Drawing No.:** 1 of 6

**File Path:** N:\9811V - Walker Upper's Quarry\Drawings\Site Plan\CAD\9811V - Site Plan - Proposed Scenario.dwg

A. General

- 1. Area to be licensed 103.6 ha (s256.0 ac.)
Area to be extracted 89.1 ha (s220.2 ac.)
2. The maximum amount of aggregate to be removed from this site in any calendar year is 1,800,000 tonnes.

B. Hours of Operation

Table with 4 columns: Activity, Monday to Friday, Saturday, Sunday. Includes activities like Drilling, Blasting, Aggregate processing, and Maintenance with their respective hours.

C. Proposed Entrances/Exits and Fencing

- 1. For the Mid Extraction Area: All traffic for operations will enter and exit the Mid Extraction Area from Upper's Lane via a main entrance/exit...
2. For the South Extraction Area: Material will be transported to the Mid Extraction Area for processing via a conveyor over the unopened road allowance...

D. Drainage and Siltation Control

- 1. Silt fence/sediment control measures will be installed within the Watercourse Realignment Transition Area prior to extraction in each extraction area and along the easterly and northerly limits of Phase 1B after the watercourse realignment is completed.

E. Site Preparation

- 1. All existing structures within the licence boundary shall be demolished or removed prior to extraction in each extraction area.
2. Timber resources (if any) will be salvaged for use as saw logs, fence posts and fuel wood where appropriate.

F. Setbacks, Berms and Screening

- 1. Setback areas as shown on the plan view. Excavation will occur within the extraction setback area along the west and northwest area of the licensed boundary to accommodate grading required for the realignment of the existing watercourse.
2. Locations and heights for all acoustic/visual berms are provided on the plan view. All proposed berms shall be constructed in accordance with the Typical Acoustic Berm Detail.

G. Site Dewatering

- 1. Surface water will be discharged from the sump areas to the existing watercourse until the watercourse is realigned to the location of Phases 1B and 2B.
2. Sump: During quarry development, a portable submersible pump will be installed in each Initial Sinking Cut Area for the purpose of dewatering to maintain a dry working area and/or aggregate washing.

H. Extraction Details

- 1. The extraction sequence is outlined on drawing 3 of 6.
2. The proposed maximum depth of extraction is indicated by the spot elevations shown on the plan view. Extraction shall proceed to a maximum depth of approximately 42 m below ground surface.
3. For Phases 1B and 2B, the maximum depth of extraction is approximately 30 metres (down to an elevation of -155 masl) and may be extracted in 1-2 lifts.

I. Equipment and Processing

- 1. A portable processing plant (including primary, secondary and tertiary crushing and screening units) will be permitted within the North and Mid Extraction Areas inclusive.
2. Processing shall be located within the limit of extraction and remain a minimum of 30 metres from the licence boundary and 50 metres from a property with a residential use.

J. Frequency / Timing of Blasts

- 1. Prior to blasting being permitted within the 100 m setback of the TransCanada Pipeline, identified as 'TransCanada Blasting Buffer Area' on this plan, the licensee shall address the requirements of notes D.5 on drawing 4 of 6.
2. All blast monitoring reports shall be retained by the licensee for a period of seven years after each blast and made available upon request for audit purposes.

K. Fuel Storage

- 1. Fuel storage tanks will be located in close proximity to the main processing plant (or in an alternative location subject to approval by the MNDMNR). Fuel storage tanks shall be installed and maintained in accordance with Technical Standards and Safety Act, 2000, Liquid Fuels Handling Code, 2000 and Liquid Fuels Regulation Reg. 217(01).
2. All fuel tanks shall be double sided or placed in containment facilities large enough to hold the tanks maximum volume.

L. Spills Plan

- 1. In case of an accidental spill of petroleum products, the following contingency plan will be activated:
a. The Ministry of Environment, Conservation and Parks (MECP) (see address and phone number below) and surrounding landowners will be notified.
b. For a leakage or spill, immediate action will be taken to stop it. At the same, measures will be taken to prevent spreading. These measures may include building a berm or construction of a ditch, for instance.

Ministry of Environment, Conservation and Parks
Niagara District Office
Garden City Tower 9th Floor, Suite 155
301 St. Paul Street
St. Catharines, Ontario
L2R 7R4

M. Scrap and Recycling

- 1. Scrap may be stored on-site and shall be removed on an on-going basis.
2. Scrap shall only include material generated directly as a result of the aggregate operation such as refuse, debris, scrap metal, lumber, discarded machinery, equipment and motor vehicles.
3. All fluids shall be drained from any discarded equipment, machinery or motor vehicle prior to storage and disposal in accordance with the Environmental Protection Act.

N. Variations from Control and Operation Standards

Table with 4 columns: No, Variation, Standard, and Reference. Lists specific deviations from control and operation standards.

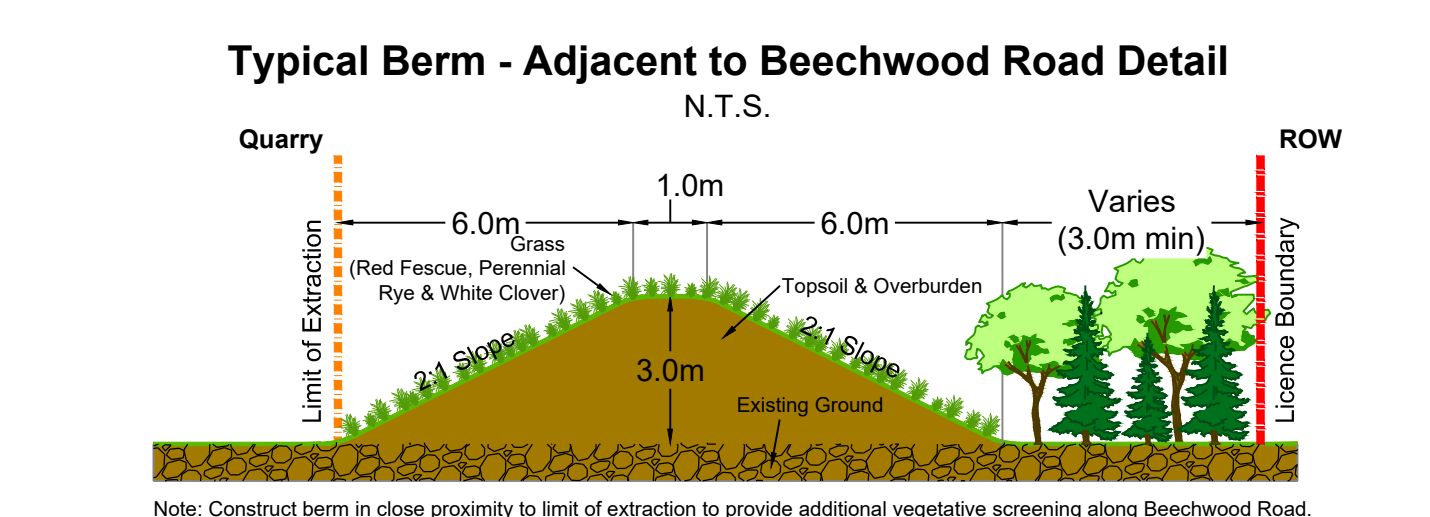
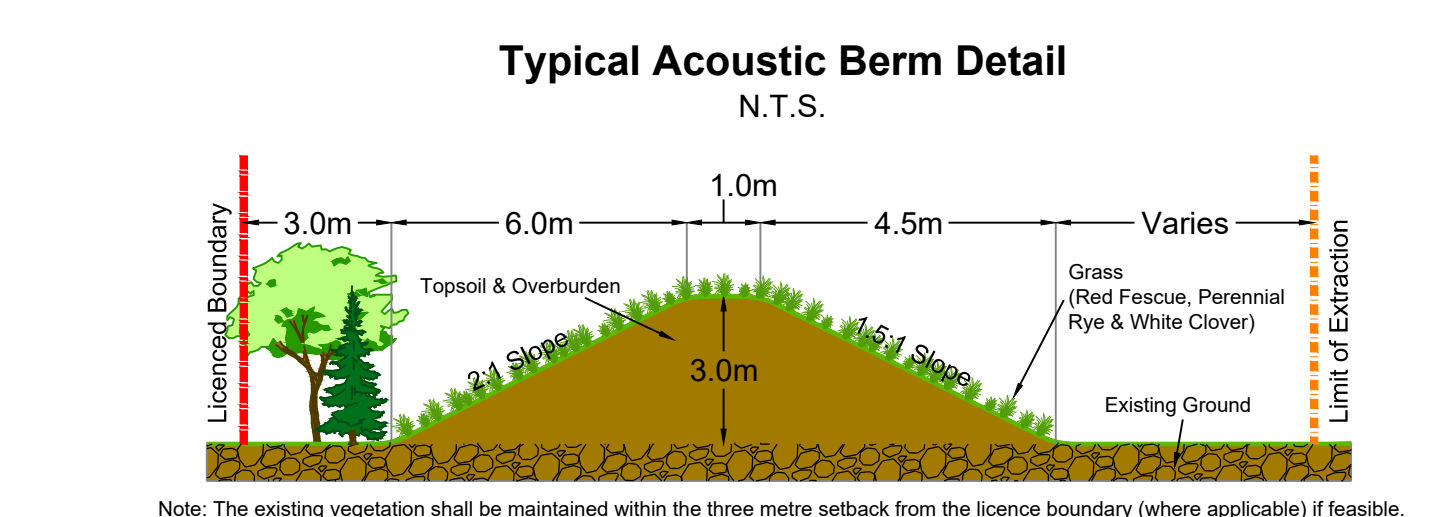
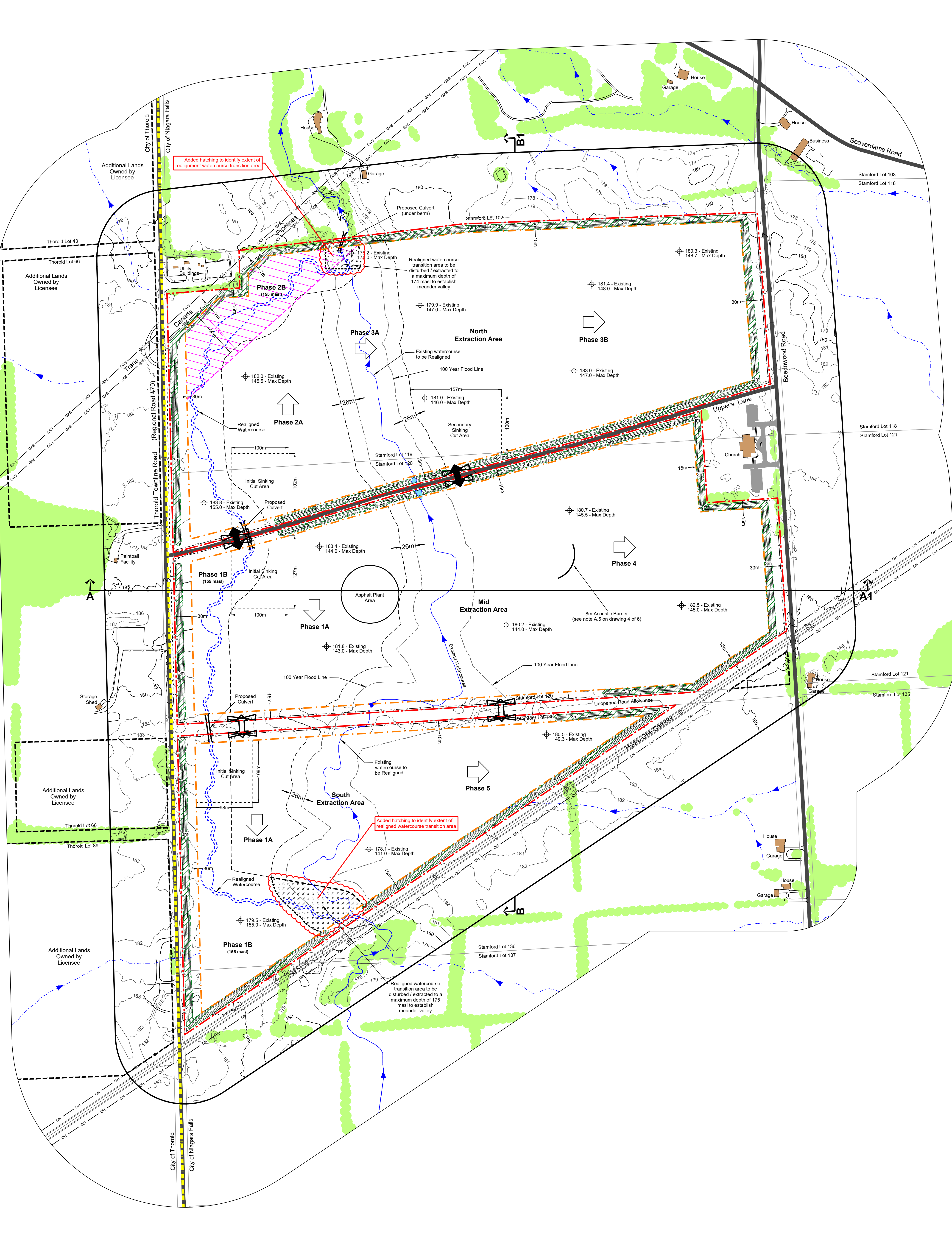


Table 1: Receptors Within 500m of Licence Boundary. Columns include Receptor No., Address, Distance, and multiple columns for Receptor Address and Distance.

Legal Description and Legend tables. Legend includes symbols for Licence Boundary, Limit of Extraction, Municipal Boundary, Contours with Elevation, Public Road, Fence, Watercourse, Water Feature, and Wooded Area.

Site Plan Acronyms and Site Plan Amendments tables. Acronyms list ARA, MNDMNR, MECP, etc. Amendments table shows a single amendment on January 2022.

MHBC Stamp and MHBC Logo. Includes company name, address (113 COLLIER STREET, BARRIE, ON, L4M 1H2), and website (WWW.MHBCONLINE.COM).

Project Summary section including Applicant (Walker Aggregates), Project Name (Upper's Quarry), Date (October 2021), and Plan Scale (1:3000 (Arc'E)).

**A. General**

- This plan depicts a schematic operations sequence for the property based on the best information available at the time of preparation.
- Phases do not represent any specific or equal time period.
- The direction of extraction will generally be in accordance with the General Direction of Excavation (shown on the plan view). Notwithstanding the operational and rehabilitation notes, demand for certain products, blending of materials or Water Study Contingency measures may require minor deviations in the extraction and rehabilitation sequence.
- Progressive and final rehabilitation will be completed in direct correlation to the development of the quarry as the extraction limits are reached and enough area is available to ensure that rehabilitation activities will not interfere with the production, stockpiling and processing of aggregate materials.

**B. Initial Site Preparation**

- Generally, site preparation in Phases 1 and 2 to include but not limited to:
  - Constructing the main entrance and cross over(s) in accordance with entrance permit approvals
  - Establishing fencing around licensed boundary (see Section N Variations from Control and Operation Standards on drawing 2 of 6)
  - Removal of trees and existing buildings (in accordance with all site plan requirements and applicable regulations)
  - Proceed with stripping of overburden/topsoil from Phase 1 and, if necessary, Phase 2
  - Construction of bents/acoustic barriers within the perimeter setback of the licence boundary (as shown on the plan view)
- Install water management and erosion and sediment control measures (silt fencing) in accordance with note D.1 on this drawing and note E.1.c on drawing 4 of 6.
- Commence portable crushing/screening plant set up. The plant shall operate in accordance with Section A on drawing 4 of 6 for all Phases.

**C. Phase 1 (1A and 1B)**

- Commence extraction in the 'Initial Sinking Cut Area' identified in the Mid and South Extraction Area (see plan view for location).
- Phase 1A shall be extracted in up to three (3) lifts to a depth ranging between 140 masl and 145 masl.
- Phase 1B shall be extracted in one (1) to two (2) lifts to a depth of 155 masl.
- A portable pump shall be utilized as necessary in the Mid Extraction Area and the South Extraction Area to discharge water to a man-made pond for aggregate washing or to a sediment forebay before being discharged to the existing watercourse. During heavy rainfall events (25 mm or more), the pump will be deactivated as necessary to prevent flooding along the watercourse downstream of the site. The discharge pond and forebay locations will move with the quarry face until the final quarry depth is reached in each extraction area. At this point, a permanent sump will be established in each extraction area.
- During Phase 1, a new watercourse channel shall be constructed along the east side of Thorold Townline Road (within Phase 1B) for the eventual realignment of the existing watercourse. As resource extraction is completed in Phase 1B, this area will be filled with clay overburden material from on-site to an elevation ranging between 173 to 175 masl. The new watercourse and riparian wetland channel shall be constructed, designed and vegetated in accordance with DFO's authorization and this Rehabilitation Plan (drawing 5 of 6).
- As extraction reaches the final quarry floor, and there is sufficient separation from the quarry floor working areas in Phase 1A, a 2:1 sideslope along the easterly and northerly limit of Phase 1B shall be backfilled with either: (i) overburden stockpiled on-site; (ii) overburden in Phase 2; or (iii) material imported from Licence Numbers 11175 and 4437.
- Commence site preparation of Phase 2.

**D. Phase 2 (2A & 2B)**

- Commence extraction in the 'Initial Sinking Cut Area' identified in the North Extraction Area (see plan view for location).
- Phase 2A shall be extracted in up to three (3) lifts to a depth ranging between 141 masl to 145 masl.
- Phase 2B shall be extracted in one (1) to two (2) lifts to a depth of 155 masl.

- A portable pump shall be utilized as necessary to discharge water to a man-made pond for aggregate washing or to a sediment forebay before being discharged to the existing watercourse. During heavy rainfall events (25 mm or more), the pump will be deactivated as necessary to prevent flooding along the watercourse downstream of the site. The discharge pond and forebay locations will move with the quarry face until the final quarry depth is reached. At this point, a permanent sump will be established.
- Similar to Phase 1, the new watercourse channel shall be constructed within Phase 2 running along the east side of Thorold Townline Road (Phase 2B) for the eventual realignment of the existing watercourse. As resource extraction is completed in Phase 2B, this area will be filled with clay overburden material from on-site to an elevation ranging between 173 to 175 masl. The new watercourse and riparian wetland channel will be constructed, designed and vegetated in accordance with DFO authorization and Rehabilitation Plan (drawing 5 of 6).
- As extraction reaches the final quarry floor, and there is sufficient separation from the quarry floor working areas in Phase 2A, a 2:1 sideslope along the easterly and northerly limit of Phase 2B shall be backfilled with either: (i) overburden stockpiled on-site; (ii) overburden in Phase 3B; or (iii) material imported from Licence Numbers 11175 and 4437.
- Commence site preparation of Phase 3.

**E. Phase 3 (3A & 3B)**

- Proceed with stripping of overburden/topsoil.
- Prior to undertaking any works within Phase 3A that may result in any serious harm to fish, according to 35(1) of the Fisheries Act, the Licensee shall obtain a Fisheries Act Authorization from the Department of Fisheries and Oceans (DFO) and shall fulfill any other conditions required by the DFO as stated on its authorization. Once the watercourse has been realigned to the satisfaction of DFO, stripping of overburden and topsoil can proceed in Phase 3A.
- In the event that watercourse relocation has not been approved or completed, extraction in Phase 3B may proceed before extraction in Phase 3A.
- In the event that Phase 3B is extracted before Phase 3A, a portable pump shall be utilized as necessary to discharge water to a man-made pond for aggregate washing or to a sediment forebay before being discharged to the existing watercourse. During heavy rainfall events (25 mm or more), the pump will be deactivated as necessary to prevent flooding along the watercourse downstream of the site. The discharge pond and forebay locations will move with the quarry face until the final quarry depth is reached. At this point, a permanent sump will be established.
- Phase 3A and 3B shall be extracted in up to three (3) lifts to a depth ranging between 145 masl to 149 masl. Extraction will proceed in an easterly direction, moving gradually from north to south.
- Once the existing watercourse has been realigned, extraction in Phase 3A may proceed.
- Continue progressive rehabilitation of the quarry perimeter where limits of extraction have been reached and there is sufficient separation from the quarry floor working areas.
- Commence site preparation of Phase 4.

**F. Phase 4**

- Proceed with stripping of overburden/topsoil.
- Commence Phase 4 extraction in an easterly direction, moving gradually from north to south.
- Phase 4 shall be extracted in up to three (3) lifts to a depth ranging between 142 masl and 147 masl.
- Continue progressive rehabilitation of the quarry perimeter where limits of extraction have been reached and there is sufficient separation from the quarry floor working areas.

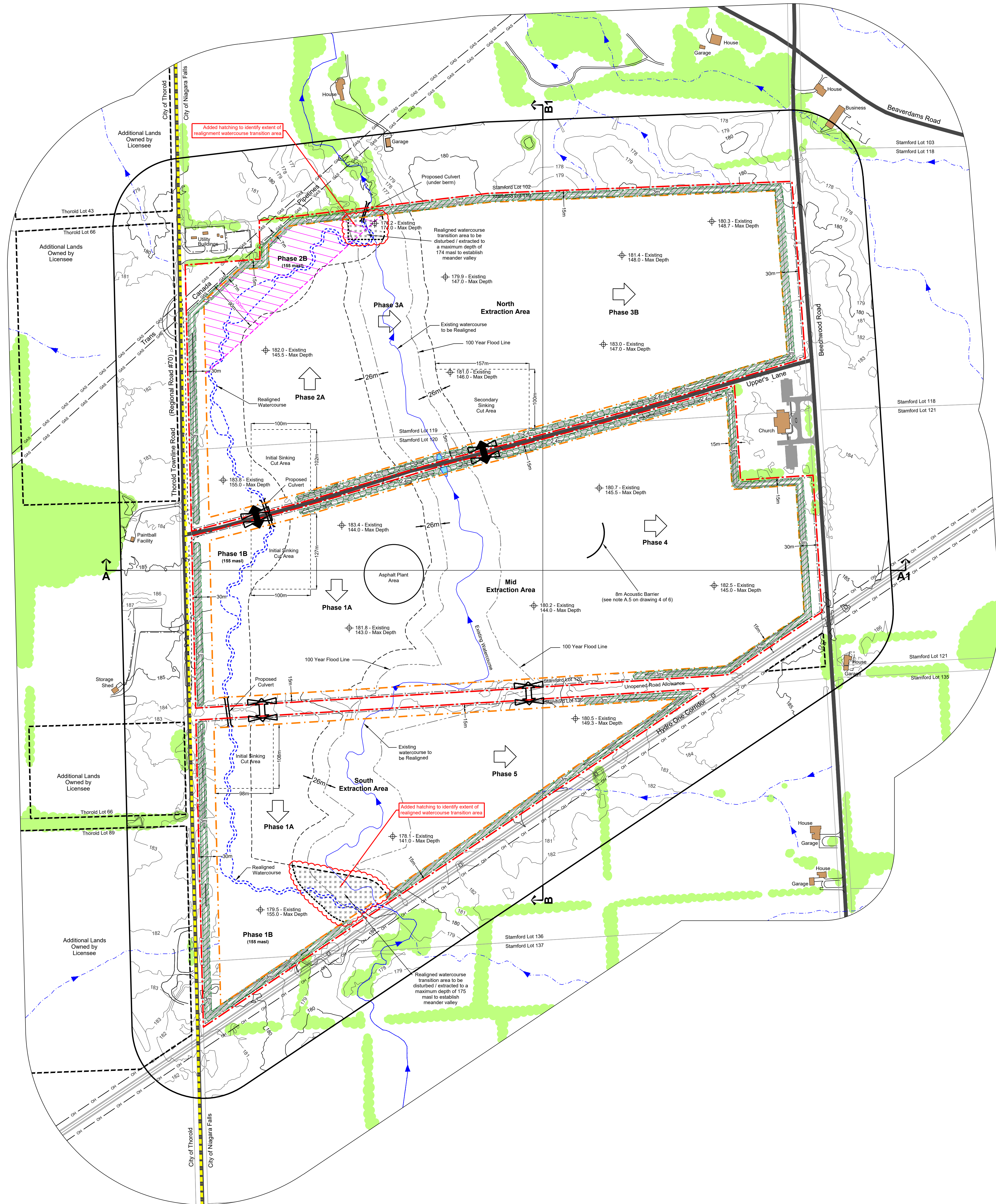
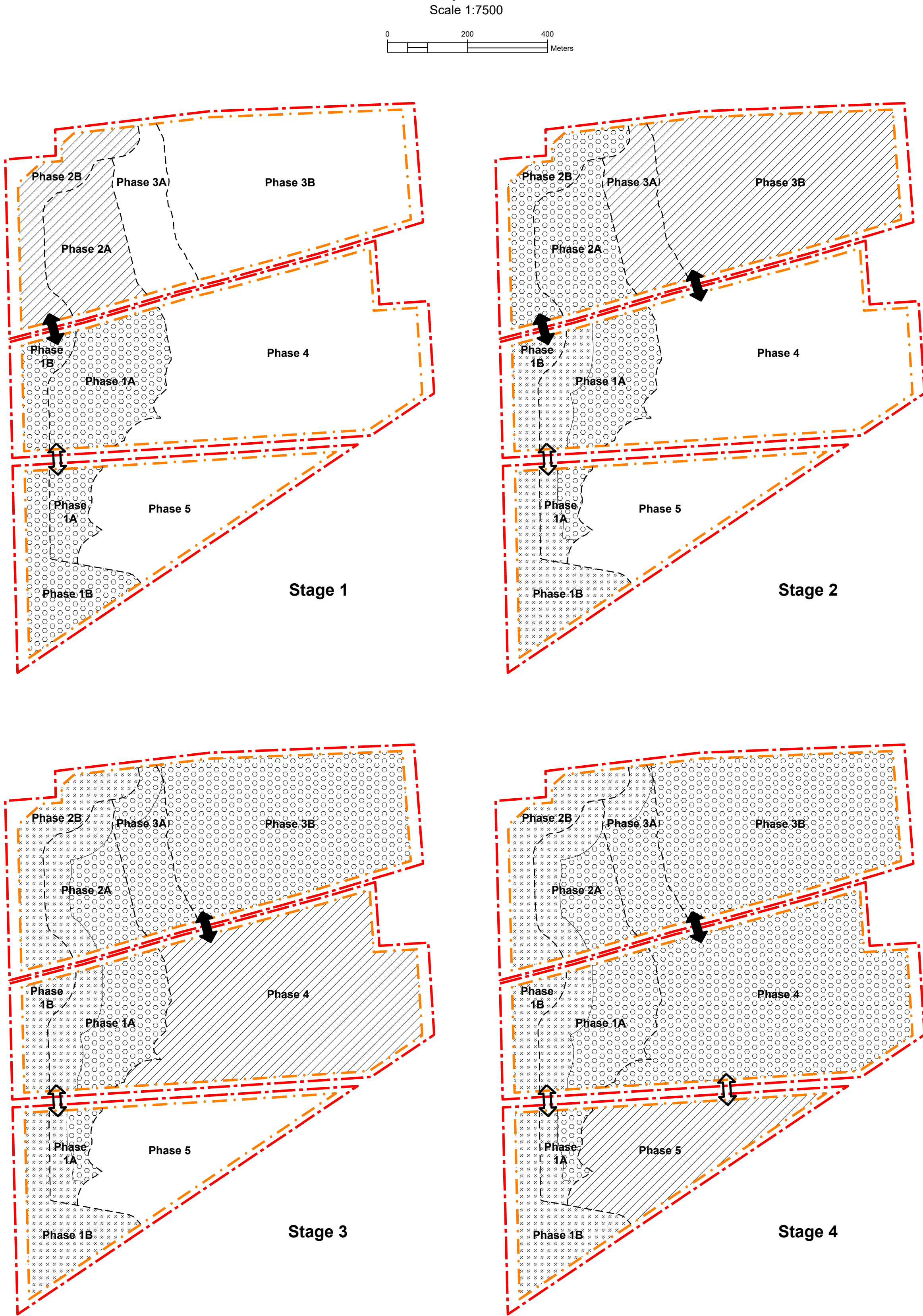
**G. Phase 5**

- Proceed with stripping of overburden/topsoil.
- Commence Phase 5 extraction in an easterly direction, moving gradually from north to south.
- Phase 5 shall be extracted in up to three (3) lifts to a depth ranging between 140 masl and 143 masl.
- Continue progressive rehabilitation of the quarry perimeter where limits of extraction have been reached and there is sufficient separation from the quarry floor working areas.

**H. Final Phase**

- Complete extraction of any remaining resource in the extraction limit near the entrance in Phase 1A and 1B (e.g. ramp).
- As part of the final operations of the site, remove official/scale house and scales and any other equipment and scrap from the site.
- Continue with final rehabilitation of the site. Complete quarry face backfilling on the remaining quarry faces as identified on drawing 5 of 6.

**Extraction Sequence Schematic**  
Scale 1:7500



**Legal Description**

Part of Lots 119, 120, 136 & 137  
City of Niagara Falls (Geographic Township of Stamford)  
Regional Municipality of Niagara

**Legend**

- Licence Boundary
- Limit of Extraction
- Additional Lands Owned by Licensee
- Municipal Boundary
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Fence (2 post & wire fence unless otherwise noted)
- Watercourse (Direction of flow indicated by arrows)
- Surface Drainage Feature (Direction of flow indicated by arrows)
- Watercourse - Realigned (Status: 2023)
- Water Feature
- Wooded Area
- Watercourse Realignment Transition Area
- 120m Offset From Licence Boundary
- Trans Canada Blasting Buffer Area (See Note D.3 on drawing 4 of 6)
- Parcel Fabric
- Trans Canada Pipeline Easement
- Hydro One Easement
- Entrance / Exit
- Limited Service Access (For Phases 1A, 1B and 5 in South Extraction Area)
- Gate
- Culvert
- General Direction of Excavation & Boundary
- Berm (Top - House Abutment Berm, Bottom - Visual Berm)
- Building/Structure
- Spot Elevation (Top - Existing, Bottom - Maximum Depth of Extraction)
- Cross Sections (A1)

**Site Plan Acronyms**

- ARA - Aggregate Resources Act
- MNDMRF - Ministry of Northern Development, Mines, Natural Resources and Forestry
- MHSTCI - Ministry of Heritage, Sport, Tourism and Culture Industries
- MECP - Ministry of the Environment, Conservation and Parks
- MGCS - Ministry of Government and Consumer Services
- DFO - Department of Fisheries and Oceans Canada
- ECA - Environmental Compliance Approval
- BMPP - Best Management Practices Plan
- PTTW - Permit to Take Water
- MASL - Metres above sea level
- ROW - Right of way
- HMA - Hot mix asphalt

**Site Plan Amendments**

No.	Date	Description	By

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

No.	Date	Description	By
1	January 2022	Revised note C.1 and hatched watercourse realignment area	C.P.

**MHBC**  
PLANNING  
URBAN DESIGN  
& LANDSCAPE  
ARCHITECTURE  
113 COLLIER STREET, BARRE, ON, LAM 1H2 | P: 705.728.0405 | F: 705.728.2010 | WWW.MHBCA1.COM

**MHBC Stamp**

Debra Walker  
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.

**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.

**Applicant**



Walker Aggregates Inc.  
2800 Thorold Townline Road  
P.O. Box 100  
Thorold, Ontario  
L2V 3Y8

**Project**

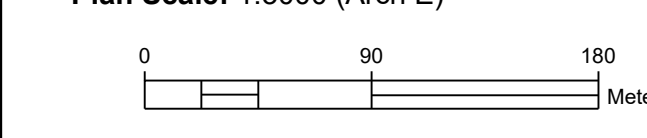
**Upper's Quarry**

**MNDMRF Licence Reference No.**

**Applicant's Signature**

**Plan Scale: 1:3000 (Arch E)**

Date: October 2021



Drawn By	C.P.	File No.	9811V
Checked By	D.W.		

**File Name**

**Extraction Sequence**

**Drawing No.**

**3 of 6**

File Path: N:\08\9811V - Walker Upper's Quarry\Drawings\Site Plan\CAD\9811V - Site Plan - Proposed Scenario.dwg

**A. Acoustic Assessment**

- 1. Minimum 3 metre tall acoustic berms shall be constructed in the locations shown on the plan view.
2. The acoustic berms shall be constructed during site preparation and prior to extraction.
3. The primary crusher shall stay within 30 metres of the working face to maximize shielding effect of the quarry terrain.
4. Material extracted from the South Extraction Area shall be processed in the Mid Extraction Area.
5. While processing in Phase 4, the licensee shall maintain an 8 metre tall barrier at a radius of 40 metres to the southeast of the processing plants' secondary crushers...
6. All construction equipment shall meet the sound emission standards defined in MECP Publication NPC-115.
7. The following best practice measures shall be undertaken to minimize the potential for construction noise impacts related to site preparation, berm creation and rehabilitation but not related to extraction and processing activities:
a. Construction will be limited to time periods allowed by the City's applicable by-laws...
b. All internal combustion engines will be fitted with appropriate muffler systems.
c. The licensee's operating procedures will contain a provision that any initial complainant will trigger verification that the general noise control measures agreed to on this Plan are in effect.
d. In the presence of persistent noise complaints, all construction equipment will be verified to comply with MECP's NPC-115 guidelines.
e. In the event of verified noise complaints, alternative noise control measures may be required where reasonably available...

**B. 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.
2. Processing equipment shall be equipped with dust suppressing or collection devices, where the equipment creates dust and is operating within 300 metres of an air quality sensitive receptor...
3. The licensee shall obtain an environmental compliance approval under the Environmental Protection Act...
4. The site will operate in accordance with the Best Management Practices Plan (BMP) for Fugitive Dust Emissions.
5. The following mitigation measures shall be incorporated into the BMP:
a. Blasting operations occurring within 300 metres of a residential receptor shall have a smaller blast area, not exceeding 200 m² in area.
b. Aggregate extraction, processing and shipping does not exceed 9,000 tonnes per day.

**C. Archaeology**

- 1. Areas identified as 'Archaeological Site - Protected Areas Requiring Further Archaeological Assessment' on this drawing reflect areas that require further archaeological assessment and are protected by a 20 to 30 metre protective buffer...
2. No ground alterations including overburden stripping and excavation, or development of any kind shall occur within areas identified as 'Archaeological Site - Protected Areas Requiring Further Archaeological Assessment'...
3. A temporary barrier shall be established around the perimeter of each 'Archaeological Site - Protected Areas Requiring Further Archaeological Assessment'...
4. All soil disturbing activities within the 50 metres monitoring buffers shall be monitored by a licensed archaeologist...
5. Immediately upon issuance of the Licence, and once the construction schedule has been finalized, a licensed archaeologist will be retained by the licensee...
6. Should deeply buried archaeology remains be found during site preparation and/or extraction related activities, the MHSTCI shall be notified.
7. In the event that human remains are encountered during construction or extraction activities, the licensee shall immediately contact both the MHSTCI and Registrar or Deputy Registrar of the Cemeteries Regulation Unit...
8. D. Blasting
1. An alteration study shall be undertaken by an independent blasting consultant during the first 12 months of operation...
9. All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive receptors...
10. Blasts shall be designed to maintain vibrations below 13mm/s at the location of the closest identified active spanning beam...
11. The guideline limits for vibration and water overpressure shall adhere to standards as outlined in the Guidelines For the Use of Explosives in or Near Canadian Fisheries Waters...
12. All blasts shall be monitored for ground vibration at the adjacent Trans Canada Energy High Pressure Natural Gas Pipeline...
13. Blasts shall be designed to maintain vibrations at the transmission towers in the Hydro One Conductor below 50mm/s...
14. Blasts shall be designed to maintain vibrations at the 4832 Thorold Townline Road utility buildings below 50mm/s...
15. The guideline limits for ground vibration and air overpressure shall adhere to standards as outlined in the Model Municipal Noise Control By-law publication NPC 119 (1978)...

**E. Natural Heritage**

- 1. General
a. Existing vegetation within the setbacks shall be maintained except where berms, haul roads and conveyors are required.
b. New vegetation shall be maintained in accordance with note G.5 on this drawing.
c. Stockpiling of all excavated material shall be in accordance with note H.7 on drawing 2 of 6.
d. Topsoil and overburden stockpiles shall be maintained in accordance with the Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat...
e. Dust control will be implemented in accordance with Section B on this drawing.
f. Fuel storage shall be in accordance with the notes under Section K on drawing 2 of 6.
2. Natural Channel Design
a. The existing watercourse will remain open (not culverted) where it enters the south limit of the South Extraction Area.
b. Where the watercourse exits the North Extraction Area, a culvert will be installed to maintain the watercourse while allowing an acoustic berm to be constructed.
c. As part of site preparation, a compensation pond will be constructed in the Watercourse Realignment Transition Area...
d. As extraction is completed in Phases 1B and 2B, these areas will be filled with clay overburden material...
e. Closures will be installed under Upper's Lane and the unopened road allowance.
f. 21' side slopes shall be established on the east side of the new watercourse channel down to the quarry floor.
g. Once the realigned watercourse channel has been constructed in Phases 1B and 2B and adequate vegetation has been established...
3. Woodland and Terrestrial Habitat Enhancement
a. The 2.0 ha woodland situated on the east side of Thorold Townline Road shall be removed during the advancement of operations in Phase 1A/1B...
b. The lands identified off-site as 'Woodland Compensation Area' on this drawing, an area of 4.7 ha, shall be planted in accordance with the Rehabilitation Plan (drawing 5 of 6).

**F. Traffic**

- 1. Prior to commencement of extraction operations, the required entrance improvements, road improvements and road widening to Thorold Townline Road shall be completed...
2. Where possible and to the extent to which it is present, existing vegetation located along the site perimeter within the setback area shall be retained.
3. 3.0 metre high acoustic berms and 2.4 metre high visual berms shall be established in the locations shown on the plan view...
4. Within the 'Extended Planting Areas' (as shown on this drawing), trees shall be planted at a spacing of 5 to 10 metres on centre...
5. Where 'Large Planting Stock' is indicated... this area shall be planted with deciduous trees of minimum 40 millimetres caliper...
6. Where 'Small Planting Stock' is indicated... this area shall be planted with deciduous tree whips of minimum 1.2 metres in height...
7. Planting shall occur for 40 metre stretches on either side of Upper's Lane and the unopened road allowance...
8. Plant species for berms may include, but shall not be limited to the following:
Trees: White Pine, White Spruce, Sugar/Silver Maple, White Pine, Common Hackberry, Paper Birch, Trembling Aspen, White Spruce, Chokecherry, Pin Oak, Basswood, White Cedar.
Shrubs: Staghorn Sumac, American Elder, Nannyberry, Dogwood, Common Nettlebark, Highbush Cranberry.
9. To ensure survival and positive growth rate, the vegetative screening shall be maintained as an effective visual screen over time...
10. During the first year, planted trees shall be watered and monitored until established...
11. A mortality rate of up to 15% of all trees planted over the course of the five year maintenance period is expected...
12. A long-term monitoring program will be implemented during the quarry operational and rehabilitation phases...
13. In the event a well interference claim is received, the licensee shall implement the following mitigation plan...
14. If a water well interference claim is received by the licensee the following actions shall be taken:
b.1. The licensee shall immediately notify MNDMNR and MECP of the claim.
b.2. The licensee shall contact a well contractor in the event of a well malfunction...
b.3. The well contractor shall contact the resident with the supply issue to rectify the problem...
15. If the issue raised by the landowner is related to loss of water supply, the licensee shall have a qualified hydrogeologist...
16. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
17. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
18. A spill action plan shall be carried out in accordance with the notes in Section N Spills Plan on drawing 2 of 3.
19. A trigger mechanism and contingency plan as set out in WSP's Level 2 Water Study Report shall be implemented.
20. WSP's Water Study Report confirms that drawdown impacts do not extend to areas identified in the Niagara Peninsula Source Protection Plan as Intake Protection Zones.

**G. Visual**

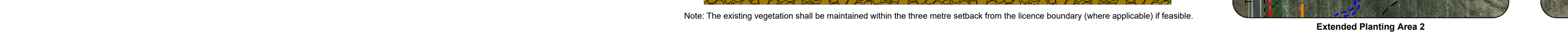
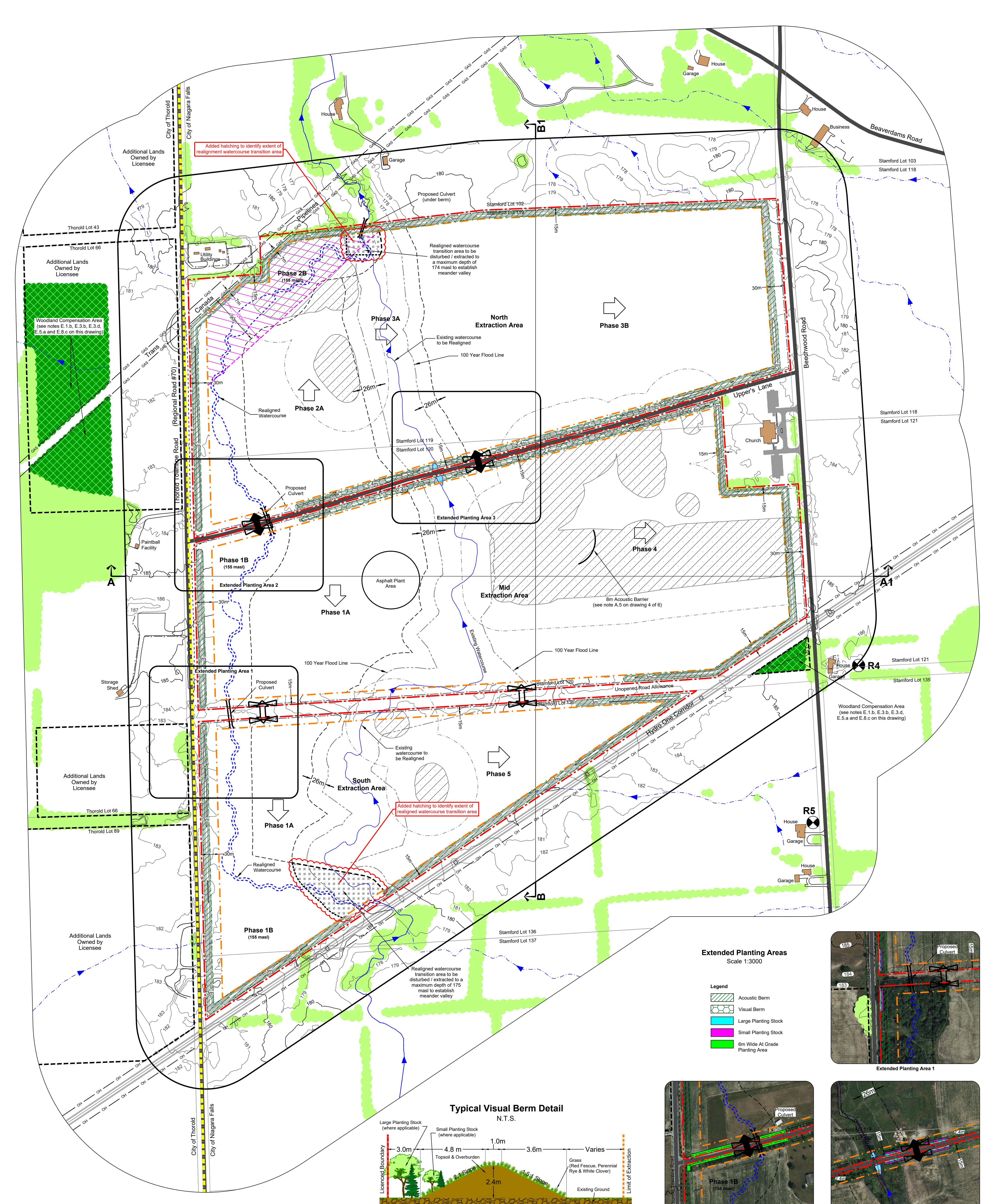
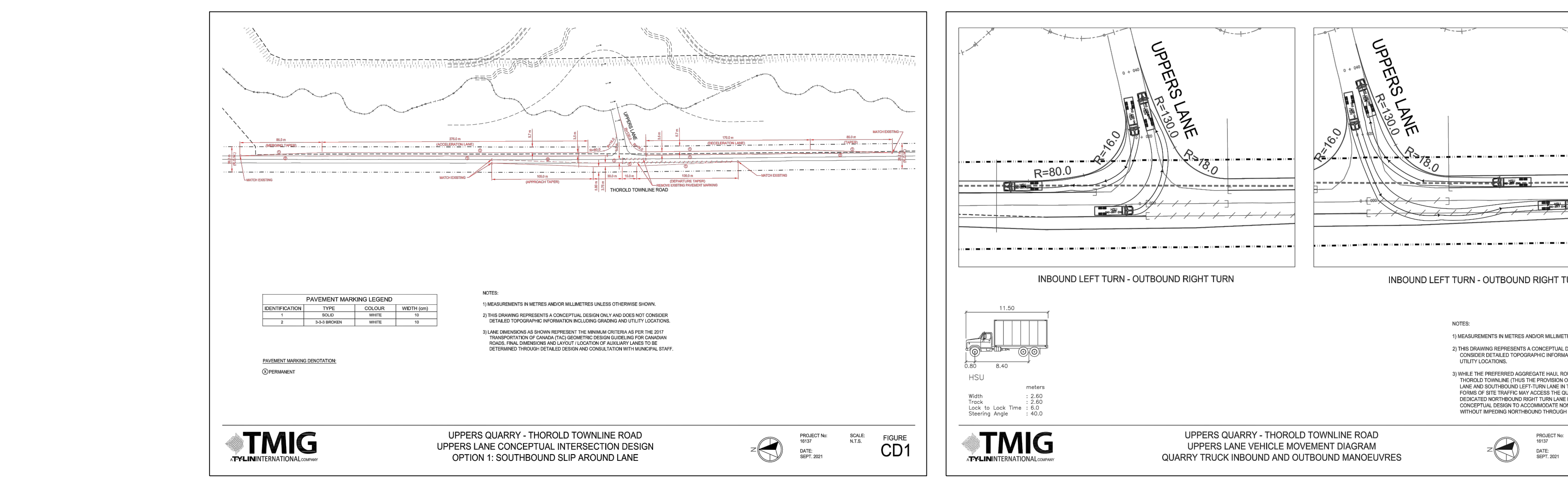
- 1. Where possible and to the extent to which it is present, existing vegetation located along the site perimeter within the setback area shall be retained.
2. 3.0 metre high acoustic berms and 2.4 metre high visual berms shall be established in the locations shown on the plan view.
3. Within the 'Extended Planting Areas' (as shown on this drawing), trees shall be planted at a spacing of 5 to 10 metres on centre...
4. Where 'Large Planting Stock' is indicated... this area shall be planted with deciduous trees of minimum 40 millimetres caliper...
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6. Planting shall occur for 40 metre stretches on either side of Upper's Lane and the unopened road allowance...
7. Plant species for berms may include, but shall not be limited to the following:
Trees: White Pine, White Spruce, Sugar/Silver Maple, White Pine, Common Hackberry, Paper Birch, Trembling Aspen, White Spruce, Chokecherry, Pin Oak, Basswood, White Cedar.
Shrubs: Staghorn Sumac, American Elder, Nannyberry, Dogwood, Common Nettlebark, Highbush Cranberry.
8. To ensure survival and positive growth rate, the vegetative screening shall be maintained as an effective visual screen over time...
9. During the first year, planted trees shall be watered and monitored until established...
10. A mortality rate of up to 15% of all trees planted over the course of the five year maintenance period is expected...
11. A long-term monitoring program will be implemented during the quarry operational and rehabilitation phases...
12. In the event a well interference claim is received, the licensee shall implement the following mitigation plan...
13. If a water well interference claim is received by the licensee the following actions shall be taken:
b.1. The licensee shall immediately notify MNDMNR and MECP of the claim.
b.2. The licensee shall contact a well contractor in the event of a well malfunction...
b.3. The well contractor shall contact the resident with the supply issue to rectify the problem...
14. If the issue raised by the landowner is related to loss of water supply, the licensee shall have a qualified hydrogeologist...
15. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
16. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
17. A spill action plan shall be carried out in accordance with the notes in Section N Spills Plan on drawing 2 of 3.
18. A trigger mechanism and contingency plan as set out in WSP's Level 2 Water Study Report shall be implemented.
19. WSP's Water Study Report confirms that drawdown impacts do not extend to areas identified in the Niagara Peninsula Source Protection Plan as Intake Protection Zones.

**H. Water Study**

- 1. A long-term monitoring program will be implemented during the quarry operational and rehabilitation phases...
2. In the event a well interference claim is received, the licensee shall implement the following mitigation plan...
3. If a water well interference claim is received by the licensee the following actions shall be taken:
b.1. The licensee shall immediately notify MNDMNR and MECP of the claim.
b.2. The licensee shall contact a well contractor in the event of a well malfunction...
b.3. The well contractor shall contact the resident with the supply issue to rectify the problem...
4. If the issue raised by the landowner is related to loss of water supply, the licensee shall have a qualified hydrogeologist...
5. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
6. If it has been determined that the quarry caused the water supply interference... the licensee shall continue to supply water...
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8. A trigger mechanism and contingency plan as set out in WSP's Level 2 Water Study Report shall be implemented.
9. WSP's Water Study Report confirms that drawdown impacts do not extend to areas identified in the Niagara Peninsula Source Protection Plan as Intake Protection Zones.

**I. Woodland and Terrestrial Habitat Enhancement**

- 1. The 2.0 ha woodland situated on the east side of Thorold Townline Road shall be removed during the advancement of operations in Phase 1A/1B...
2. The lands identified off-site as 'Woodland Compensation Area' on this drawing, an area of 4.7 ha, shall be planted in accordance with the Rehabilitation Plan (drawing 5 of 6).



Legal Description: Part of Lots 119, 120, 136 & 137 City of Niagara Falls. Legend: Licence Boundary, Limit of Extraction, Additional Lands Owned by Licensee, Municipal Boundary, Contours with Elevation, Public Road, Fence, Watercourse, Surface Drainage Feature, Watercourse - Realigned, Water Feature, Wooded Area, Watercourse Realignment Transition Area, Woodland Compensation Area (Off-site), Archaeological Site, Archaeological Offset.

Site Plan Acronyms table listing organizations such as ARA - Aggregate Resources Act, MNDMNR - Ministry of Northern Development, Mines, Natural Resources and Forestry, etc.

Site Plan Amendments table with columns for No., Date, Description, and By.

Site Plan Revisions (Pre-Licensing) table with columns for No., Date, Description, and By.

MHBC logo and contact information for Planning Urban Design & Landscape Architecture.

MHBC Stamp area for Debra Walker and Christopher Poole, including their professional details and signatures.

Walker Aggregates logo and contact information, including address and phone number.

Project information: Upper's Quarry, MNDMNR Licence Reference No., Applicant's Signature, Plan Scale, Date, Drawn By, Checked By, File No. 9811V, File Name: Report Recommendations, Drawing No. 4 of 6, File Path.

PROGRESSIVE REHABILITATION

- A. General
1. Area calculations:
a. Licenced area 103.6 ha
b. To be extracted 89.1 ha
c. Final rehabilitation within licence (total) 103.6 ha
c.a. Lake 69.8 ha
c.b. Shoreline wetland 1.3 ha
c.c. Wetland/pond/stream 2.9 ha
c.d. Terrestrial 22.7 ha
c.e. Deciduous Woodland 1.2 ha
c.f. Treed Deciduous Swamp 2.0 ha
c.g. Swamp Thicket & Marsh Meadow 0.8 ha
c.h. Undisturbed 3.9 ha
d. To be rehabilitated outside of licence: 4.7 ha
d.a. Woodland Compensation Area 4.7 ha

- B. Phasing
1. As excavation reaches the limit of extraction or maximum depth, progressive rehabilitation shall commence.
2. Progressive rehabilitation shall follow the general direction and sequence of extraction identified on the plan view and described in the notes on drawing 3 of 6.
3. Prior to extraction commencing in Phases 3A and 3B, side sloping adjacent to Phases 1B and 2B shall be completed to allow for the existing watercourse realignment to be finalized.
4. Dewatering of the quarry will ultimately discharge to the watercourse (pre and post realignment).
5. Watercourse Realignment Channel Area - As portions of the watercourse realignment channel are constructed, the channel shall be planted according to the requirements of each respective planting zone.
6. Reforestation Areas - There are two main reforestation areas:

- C. Slopes and Grading
1. Progressive rehabilitation will utilize a variety of rehabilitation techniques including:
a. backfilling extraction faces and quarry floors; or
b. Leaving extraction faces vertical
2. Excess soil, as defined by Ontario Regulation 400/19 under the Environmental Protection Act, may be imported for the following rehabilitation purposes:
2.1. To establish the final elevations, slopes and grades depicted on the plan view
2.2. Top dressing to establish vegetation
3. Excess soil imported for the rehabilitation purposes described above shall meet the soil quality standards set out in Table 1: "Full Depth Background Site Condition Standards", of the Rules for Soil Management and Excess Soil Quality Standards published by the Ministry of Environment, Conservation and Parks, as amended from time to time.

- D. Seeding and Planting
1. Side slopes steeper than 3:1 shall be seeded with the Ministry of Transportation's (MTO) Ontario Roadside Seed Mix.
2. The deciduous woodlands, treed deciduous swamp, swamp thicket/marsh meadow, shoreline wetland, and realigned watercourse channel (riparian corridor) shall be planted with species identified in Tables 1-5 on this drawing respectively.
E. Drainage
1. Final surface drainage will follow the rehabilitated contours and directional arrows shown on the plan view.
2. Once the quarry is depleted, pumping will cease and portions of the site below the ground water table will fill with water.
3. The quarry dewatering discharge will be directed to the watercourse (pre and post alignment) and ultimately flow to Beverdams Creek to support fish habitat and downstream wetlands.
4. The licensee shall operate in accordance with the conditions of the MECP, PTWW and ECA for the ongoing dewatering of the site.
F. Trigger Mechanism and Contingency Plan
1. During progressive rehabilitation, until surrendering the licence, the licensee is required to operate in accordance with the Trigger Mechanism and Contingency Plan, included in the Upper's Quarry Level 2 Water Study Report prepared by WSP, dated October 2021, as may be amended from time to time with approval from MNDMNR.

- FINAL REHABILITATION
G. General
1. All equipment and buildings/structures shall be removed from the licenced area.
2. A field/property access entrance shall remain to access the watercourse (as realigned).
3. The long term average surface water and lake level elevation is estimated to be approximately 175.15 masl.
4. At final rehabilitation, outflow from the realigned watercourse and the quarry lake will continue to discharge from the licence area at the present location where the existing watercourse channel crosses the northern licence boundary.

Table 1: Deciduous Woodland Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Acer saccharum, Fraxinus americana, and various shrubs like Amelanchier arborea.

Table 2: Treed Deciduous Swamp Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Cornus amomum, Ilex verticillata, and various shrubs like Galium aparine.

Table 3: Swamp Thicket / Marsh Meadow Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Carex lasiocarpa, Scirpus americanus, and various sedges.

Table 4: Riparian Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Cornus amomum, Ilex verticillata, and various shrubs like Galium aparine.

Table 5: Shoreline Wetland

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Alnus incana, Salix caprea, and various grasses.

Table 6: Riparian Planting List

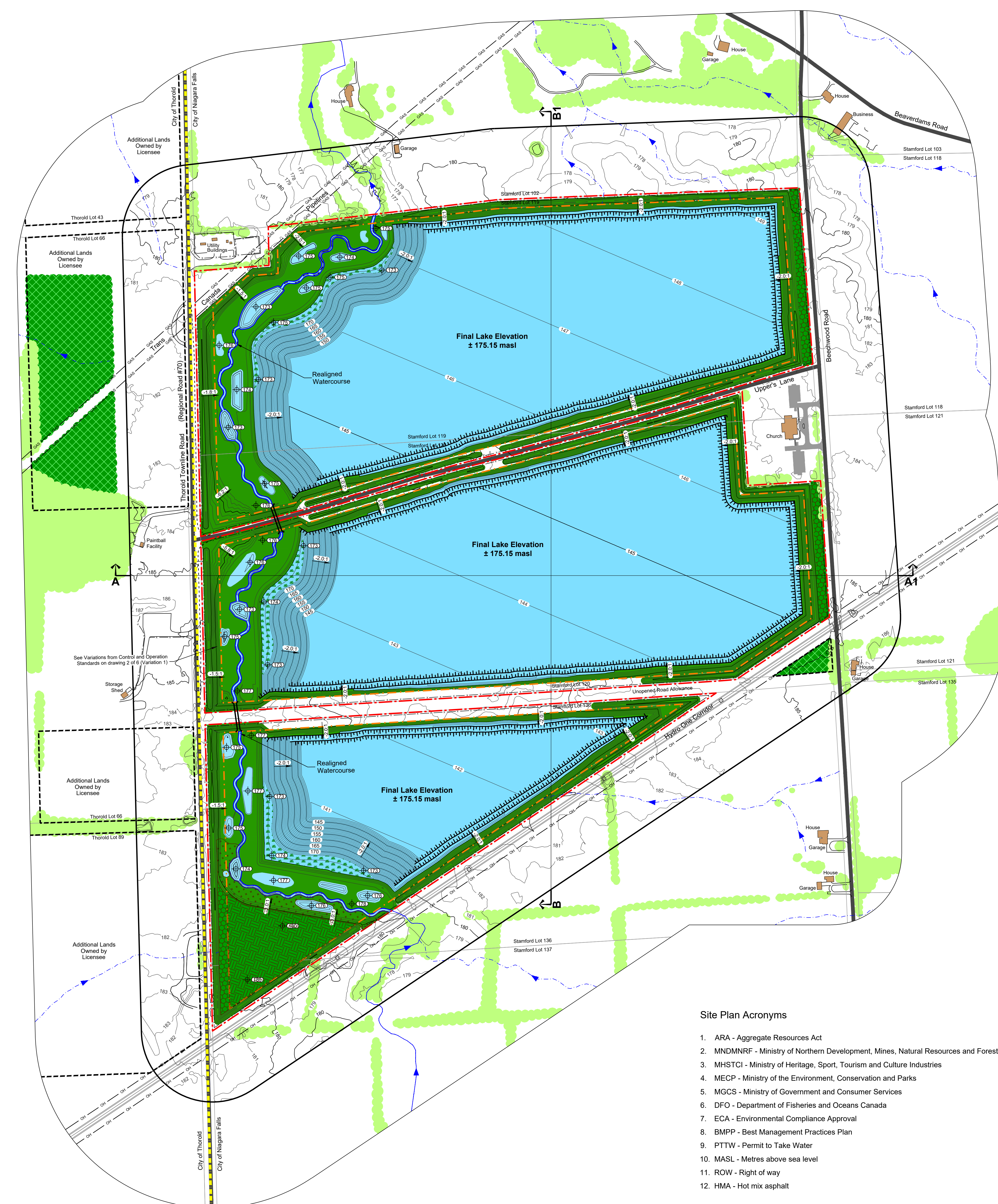
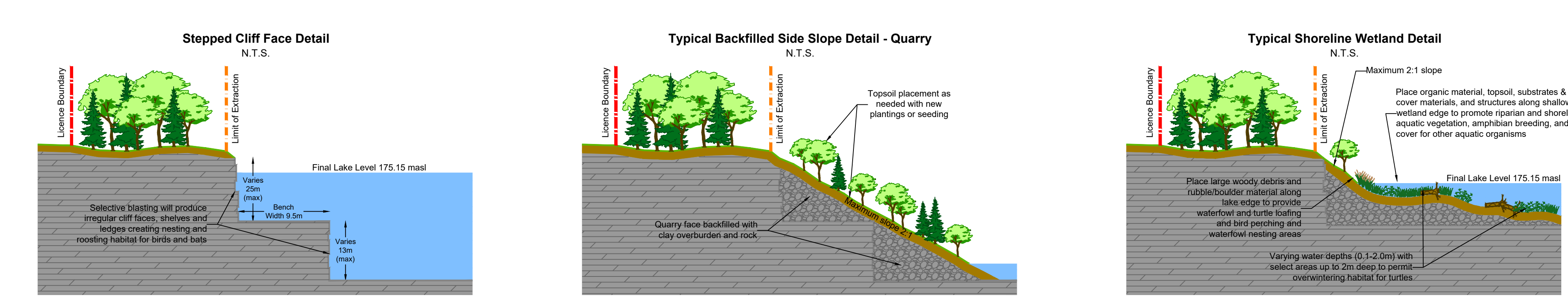
Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Cornus amomum, Ilex verticillata, and various shrubs like Galium aparine.

Table 7: Riparian Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Cornus amomum, Ilex verticillata, and various shrubs like Galium aparine.

Table 8: Riparian Planting List

Table with 3 columns: Botanical Name, Common Name, and percentage. Lists species like Cornus amomum, Ilex verticillata, and various shrubs like Galium aparine.

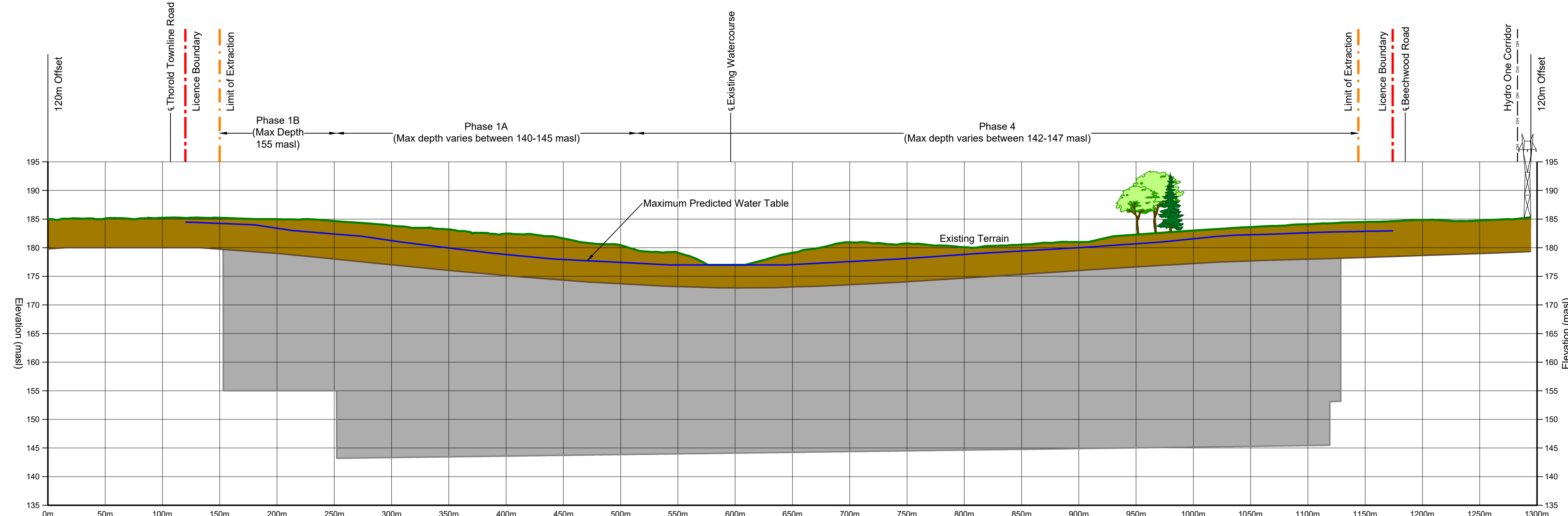


Legend section containing symbols for Licence Boundary, Limit of Extraction, Additional Lands Owned by Licensee, Municipal Boundary, Watercourse, Surface Drainage Feature, Watercourse - Realigned, Waterbody, Shoreline Wetland, Terrestrial Habitat, Deciduous Woodland, Treed Deciduous Swamp, Swamp Thicket and Marsh Meadow, Woodland Compensation Area (Off-site), and Wooded Area. Includes a Cross Sections legend and a table for Site Plan Amendments.

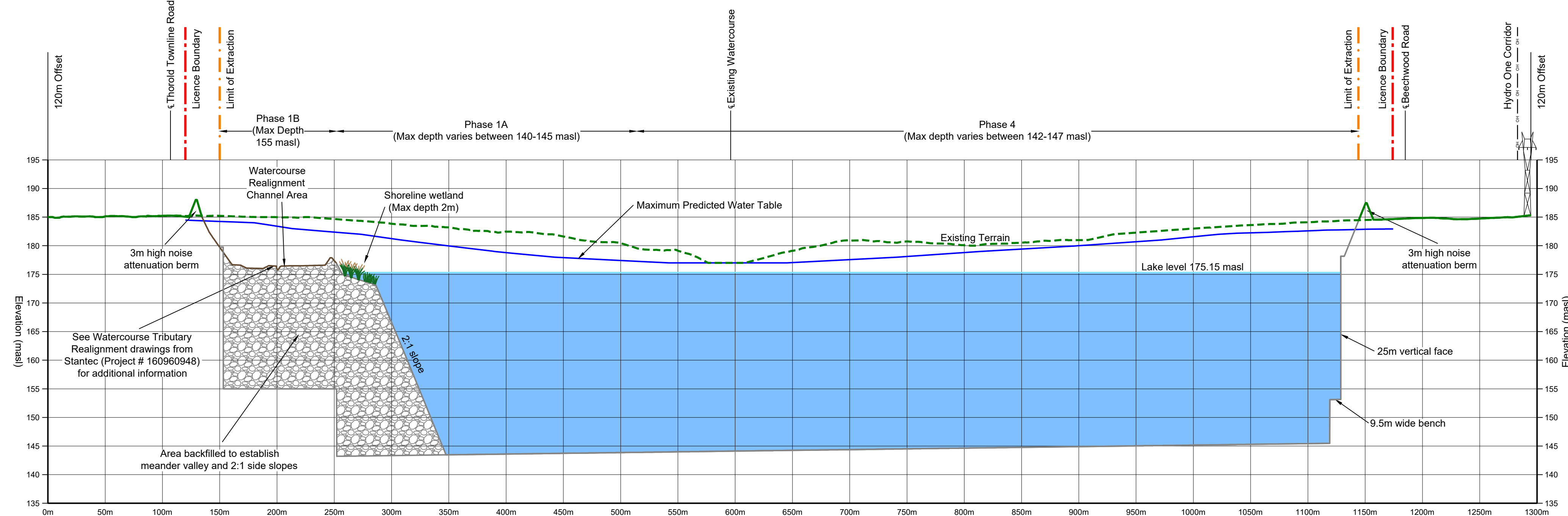
Legend - Cross Sections section with symbols for Licence Boundary, Limit of Extraction, Existing Grade - Undisturbed, Existing Grade - Removed / Altered, Maximum Predicted Water Table, Quarry Floor / Face, Backfilled, Lake or Pond, and Hydro Corridor. Includes a table for Site Plan Revisions (Pre-Licensing).

Professional stamp area for MHBC (MHBC CONSULTING INC.) including the MHBC logo, contact information, and a table for Site Plan Revisions (Pre-Licensing) with columns for No., Date, Description, and By.

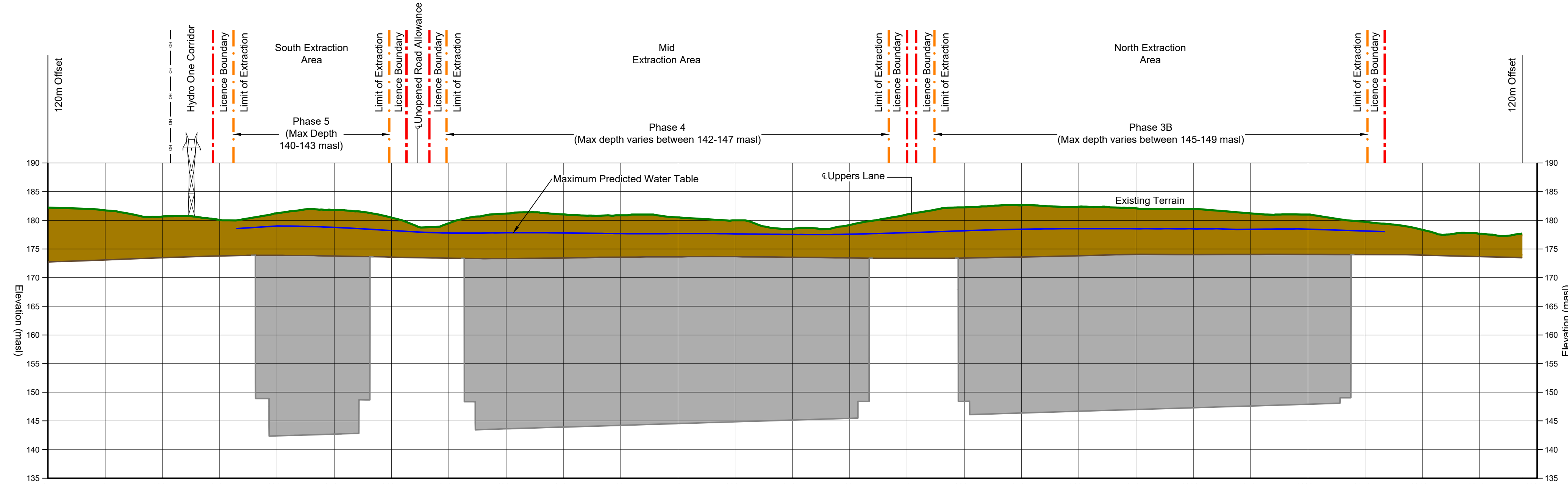
Project information section including Site Plan Acronyms (ARA, MNDMNR, MHSTCI, MECP, MGCS, DFO, ECA, BMPP, PTWW, MASL, ROW, HMA), Project Name (Upper's Quarry), MNDMNR Licence Reference No., Applicant's Signature, Plan Scale (1:3000), Date (October 2021), and File No. (9811V).



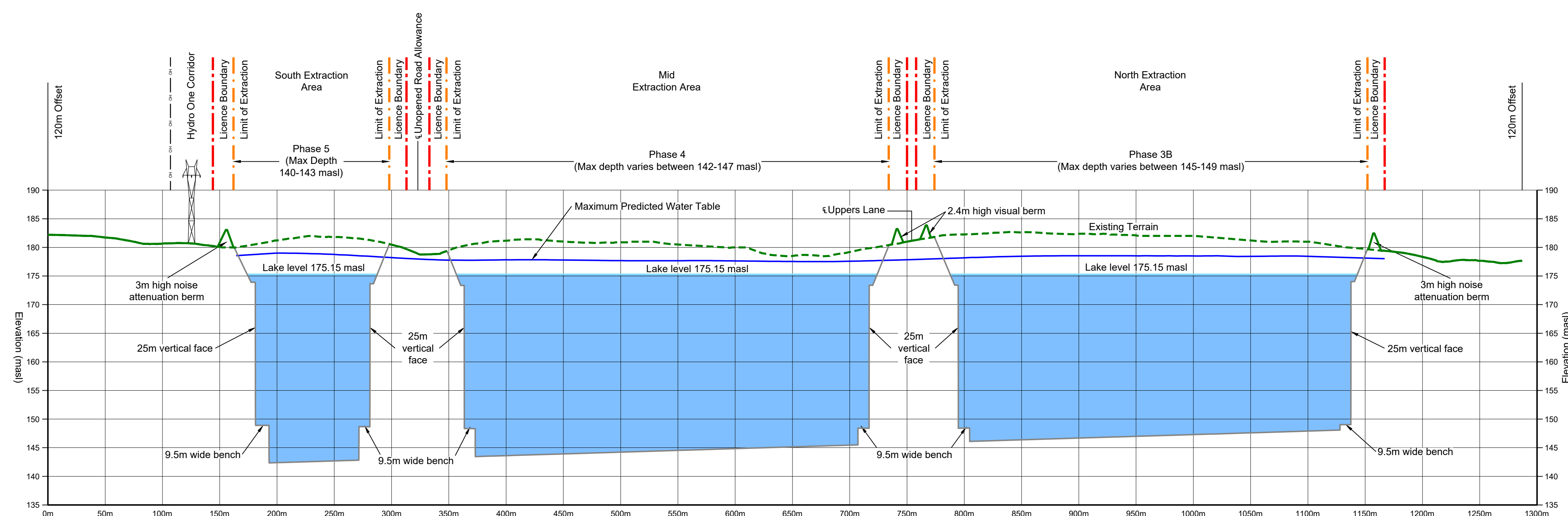
**Section A-A' - Existing**  
Horizontal - 1:2500  
Vertical - 1:500



**Section A-A' - Rehabilitation**  
Horizontal - 1:2500  
Vertical - 1:500

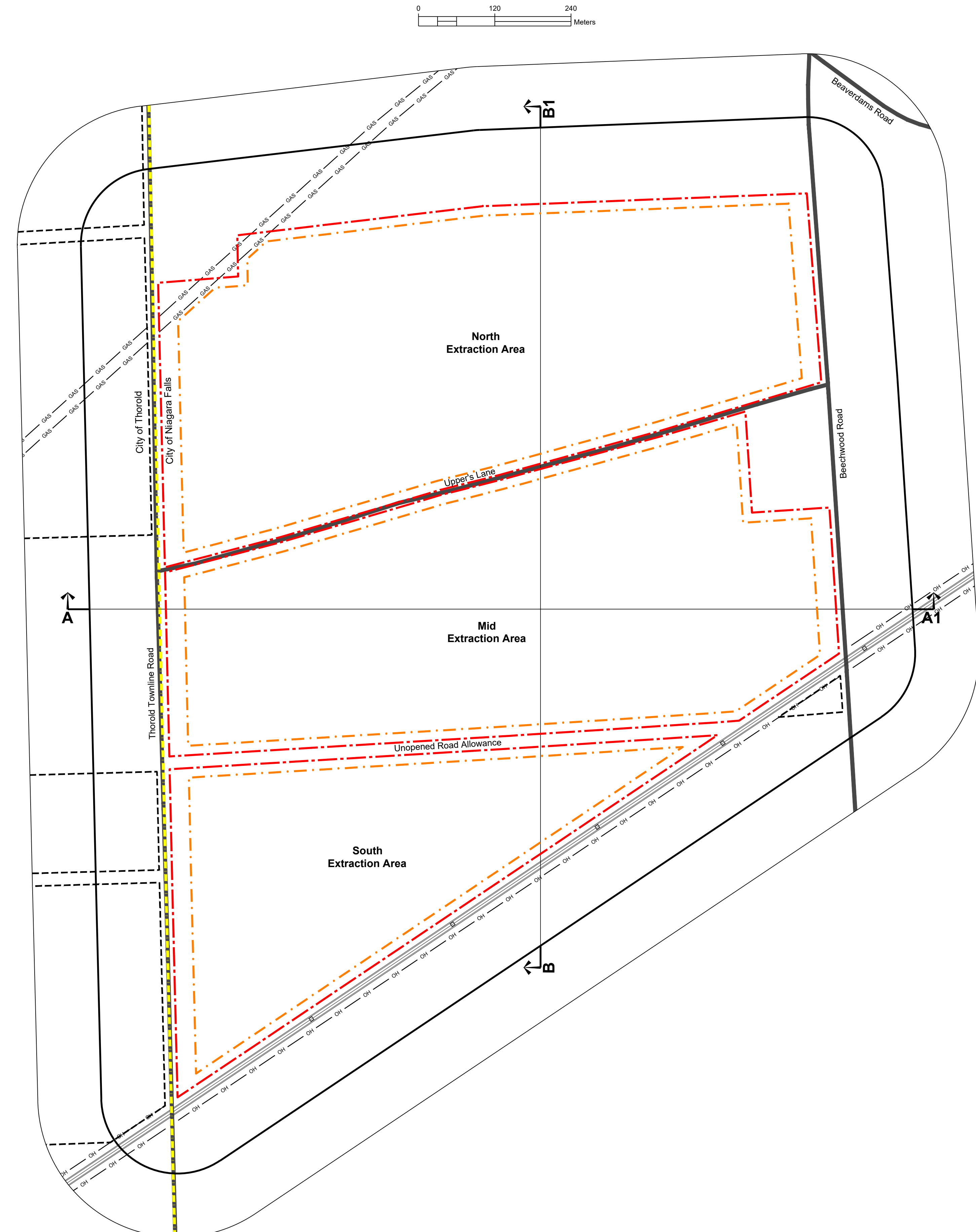


**Section B-B' - Existing**  
Horizontal - 1:2500  
Vertical - 1:500



**Section B-B' - Rehabilitation**  
Horizontal - 1:2500  
Vertical - 1:500

**Cross Section Key Map**  
Scale 1:4000



- Legal Description**  
Part of Lots 119, 120, 136 & 137  
City of Niagara Falls (Geographic Township of Stamford)  
Regional Municipality of Niagara
- Legend**
- Licence Boundary
  - Limit of Extraction
  - Additional Lands Owned by Licensee
  - Municipal Boundary
  - 120m Offset From Licence Boundary
  - Public Road
  - Trans Canada Pipeline Easement
  - Hydro One Easement
  - Cross Sections

- Legend - Cross Sections**
- Licence Boundary
  - Limit of Extraction
  - Existing Grade - Undisturbed
  - Existing Grade - Removed / Altered
  - Berm
  - Maximum Predicted Water Table (See note A.2 on drawing 5 of 6)
  - Quarry Floor / Face
  - Topsoil and/or Overburden
  - Aggregate Available for Extraction
  - Backfilled
  - Lake or Pond
  - Hydro Corridor

**Site Plan Amendments**

No.	Date	Description	By

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

No.	Date	Description	By
1	January 2022	Updated site plan per feedback from MNDMRF and completed noise modelling	C.P.

**MHBC**  
PLANNING  
URBAN DESIGN  
& LANDSCAPE  
ARCHITECTURE  
113 COLLIER STREET, BARRE, ON, L4M 1K2 | P: 705.728.0040 F: 705.728.2010 | WWW.MHBCPLAN.COM

**MHBC Stamp**  
Debra Walker  
Is authorized by the Ministry of Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 2.2(3)(f) of Ontario Regulation 244/97 to prepare and certify site plans.

**MHBC Stamp**  
Christopher Poole  
Is authorized by the Ministry of Northern Development, Mines, Natural Resources and Forestry pursuant to Subsection 2.2(3)(f) of Ontario Regulation 244/97 to prepare and certify site plans.

**Applicant**  
**walker aggregates**  
Walker Aggregates Inc.  
2800 Thoroit Townline Road  
P.O. Box 100  
Thoroit, Ontario  
L2V 3Y8

**Project**  
**Upper's Quarry**

**MNDMRF Licence Reference No.** / **Applicant's Signature**

**Plan Scale:** (Arch E)  
Horizontal 1:2500  
Vertical 1:500

**Date** October 2021  
**Drawn By** C.P. / **File No.** 9811V  
**Checked By** D.W.

**File Name** **Cross Sections**  
**Drawing No.** **6 of 6**  
**File Path** N:\88111V - Walker Upper's Quarry\Drawings\Site Plan\CAD\811V - Site Plan - Proposed Scenario.dwg