

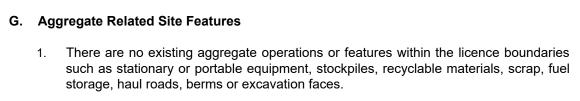
- A. General
- 1. This Site Plan is prepared under the Aggregate Resources Act for a Class A Licence for a quarry below the ground water table.
- 2. Area to be licenced 103.6 ha. (±256.0 ac.) Area to be extracted 89.1 ha. (±220.2 ac.)

B. References

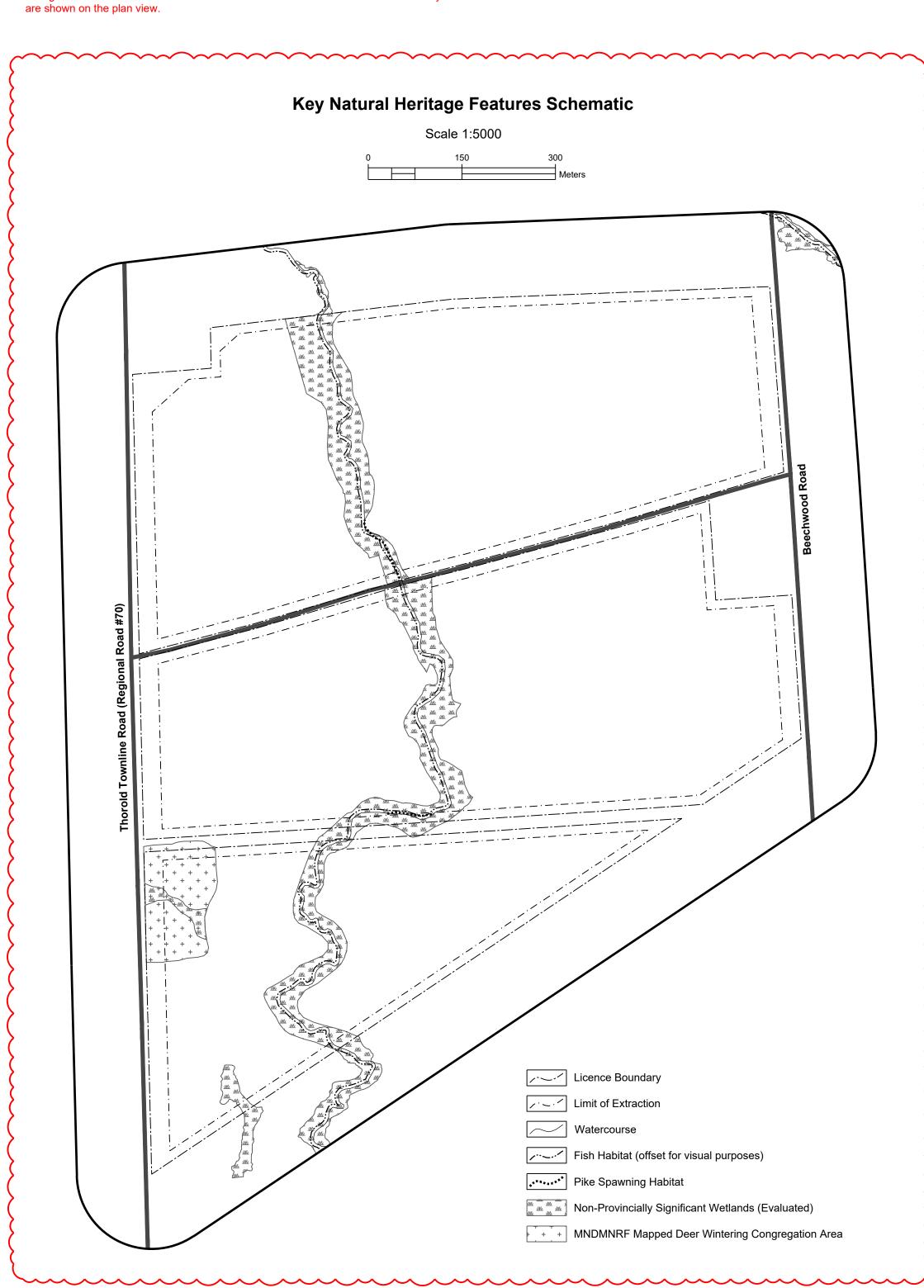
- 1. Contour information was obtained from a topographic survey prepared by TEC Engineering (formerly Renishaw (Canada) Limited) using October 2016 and February 2017 aerial photography and are displayed in one metre intervals. Elevations shown are in metres above sea level (masl).
- 2. Topographic information was obtained from numerous sources including Ontario GeoHub (Land Information Ontario), Google Earth Pro aerial photography captured on July 18, 2018 and field investigations for technical reports. 3. All topographic features and structures are shown to scale in Universal Transverse
- Mercator (UTM) with North American Datum 1983 (NAD83), Zone 17 (metre), Central Meridian 81 degrees west coordinate system. 4. Property boundaries were obtained from a Plan of Survey prepared by Matthews, 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. 5. Zoning categories on or within 120 metres of the licence boundary are from the City of Niagara Falls Zoning By-law No. 79-200 (Schedules A3 and A4 - Consolidation April 2015).
- 6. 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
- 1. 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

- 1. 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
- 1. 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. 2. Post and wire fencing (unless otherwise noted) exists in the locations shown on the
- plan view. F. Significant Features
- 1. 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.
- 2. All significant human-made features on and within 120 metres of the licence boundary are shown on the plan view.

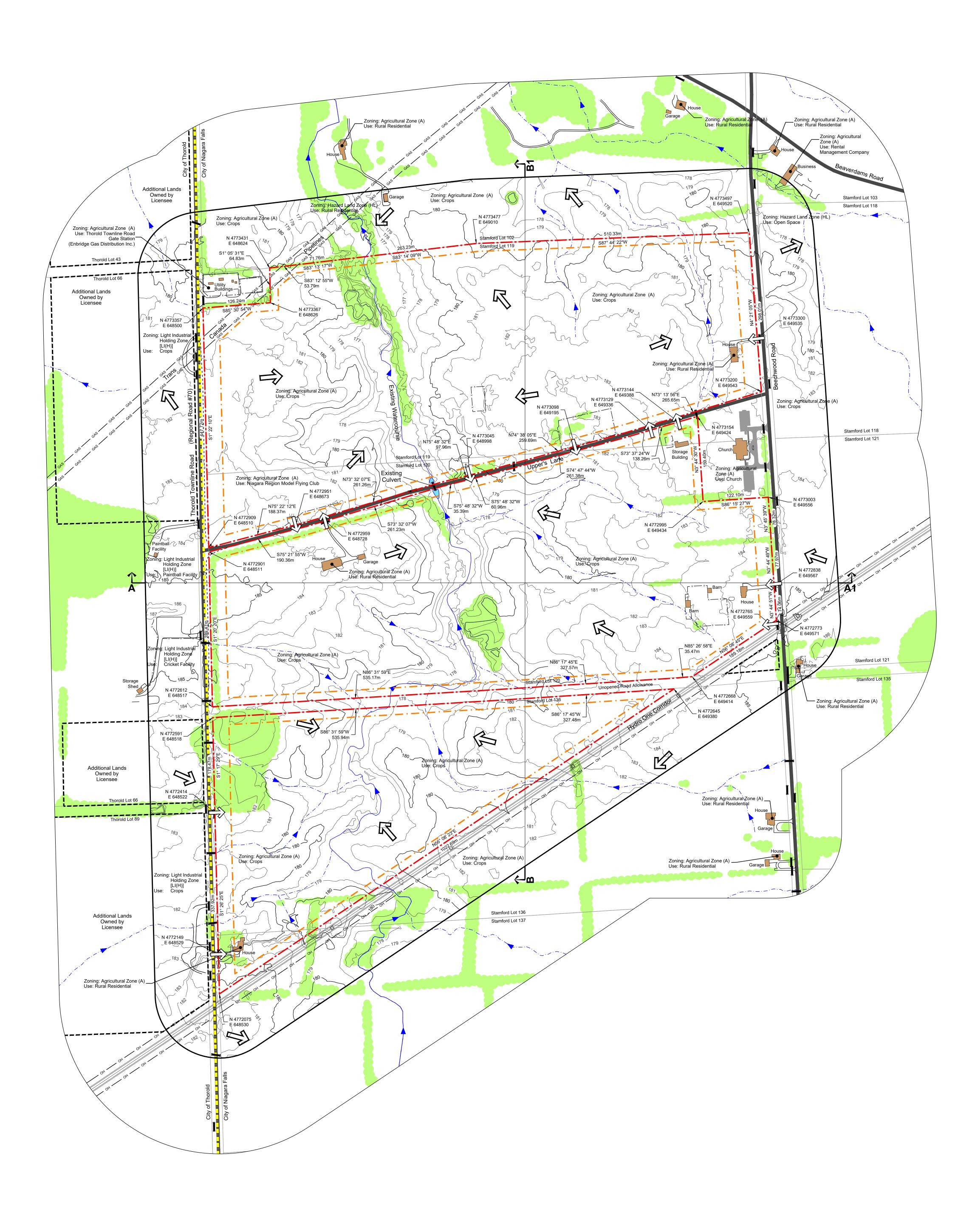


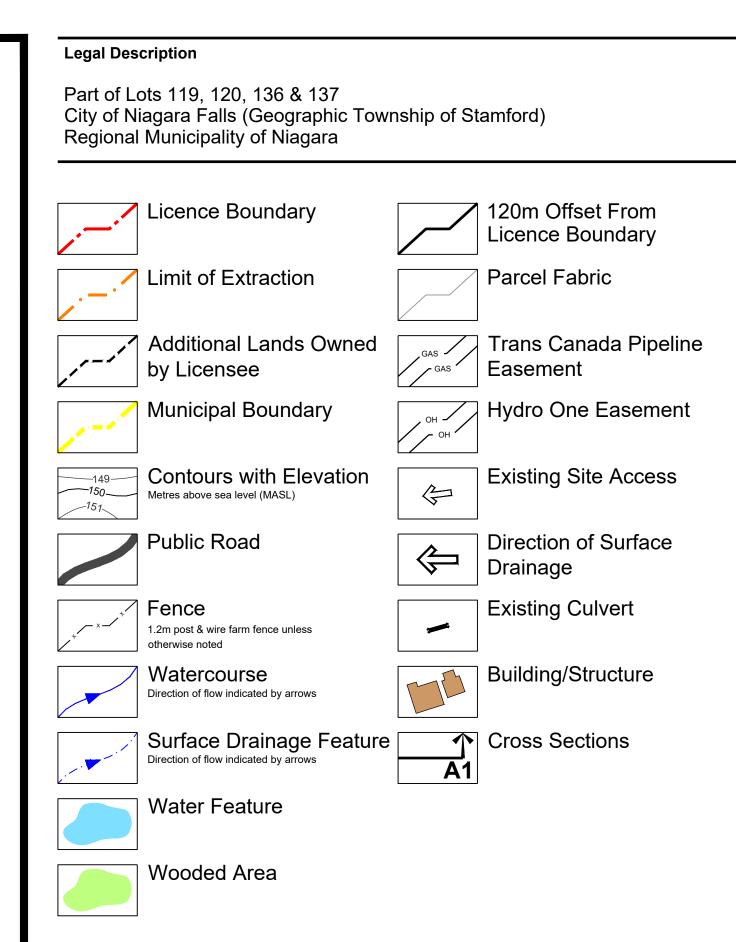
- G. Technical Reports References
- 2. Agricultural Impact Assessment for Upper's Quarry, Colville Consulting Inc., October
- 3. Upper's Quarry: Air Quality Assessment, RWDI Air Inc., October 2021.
- 4. Archaeological Assessments:
- a. Stage 1 Archeological Resource Assessment of Walker Aggregates Proposed South Niagara Quarry, Part of Lots 102, 119, 120, 136 & 137, Archeological Services Inc., December 2008.
- b. Stage 1-2 Archeological Assessment of Part 9764 Uppers Lane, Part of Lots 119 & 120, Archeological Assessments Ltd., November 3, 2005.
- c. Stage 2-3 Archeological Assessment, Part of Lots 102, 119, 120, 136 & 137,
- Archeological Assessments Ltd., November 21, 2012. d. Stage 1-2 Archeological Assessments, Upper's Quarry Additional Lands, Part of
- e. Stage 3 Mitigation of Development Impacts, Final Excavation Report, Walker XI
- f. Stage 4 Mitigation of Development Impacts, Final Excavation Report, Walker XI
- 5. Blast Impact Analysis, Upper's Quarry, Explotech, October 2021.
- 6. Cultural Heritage Impact Assessment Report, Proposed Upper's Quarry, MHBC, October 2021.
- 7. Economic Benefits Analysis, Prism, October 2021.
- 8. Level 2 Water Study Report, WSP, October 2021.
- 9. Maximum Predicted Water Table Report, WSP, October 2021.
- 10. Upper's Quarry, Niagara: Level 1 and Level 2 Natural Environment Technical Report and Environmental Impact Study, Stantec, October 2021.
- 11. Planning Justification Report and Summary Statement, MHBC, October 2021.
- 12. Traffic Impact Study, Upper's Quarry, TMIG, October 2021.
- 13. Visual Impact Assessment, Proposed Upper's Quarry, MHBC, October 2021.



Lots 119& 120, Archaeological Research Associates Ltd., April 20, 2020. (AgGT-411), Upper's Quarry, Archaeological Research Associates Ltd., May 26, (AgGT-178), Upper's Quarry, Archeological Research Associates Ltd., July 22,

1. Upper's Quarry: Acoustic Assessment Report, RWDI, October 2021.





Site Plan Acronyms

- 1. ARA Aggregate Resources Act
- 2. MNDMNRF Ministry of Northern Development, Mines, Natural Resources and Forestry
- 3. MHSTCI Ministry of Heritage, Sport, Tourism and Culture Industries
- 4. MECP Ministry of the Environment, Conservation and Parks 5. MGCS - Ministry of Government and Consumer Services
- 6. DFO Department of Fisheries and Oceans Canada
- 7. ECA Environmental Compliance Approval
- 8. BMPP Best Management Practices Plan
- 9. PTTW Permit to Take Water
- 10. MASL Metres above sea level
- 11. ROW Right of way 12. HMA - Hot mix asphalt

Site P	lan Amendmen	ts				
No.	Date	Description	Ву			
Site P	lan Revisions (Pre-Licencing)				
1	January 2022	Added Key Natural Heritage Features Schematic and Section F to the site plan notes	C.P.			
No.	Date	Description	Ву			
l N p	C Stamp Debra Wa Is authorized by th Northern Develop Natural Resources oursuant to Subsect of Ontario Regulat prepare and certif	Ministry of Is authorized by the Ministry of Nonerry evelopment, Mines, Naviar Produces and Forestry on 0.2 (e 01 7 to 0 of cutaric Regulation 244/97 to	GN PE RE			
Walker Aggregates Inc. 2800 Thorold Townline Road P.O. Box 100 Thorold, Ontario L2V 3Y8						
MNDM	INRF Licence R	Reference No. Applicant's Signature				

Plan Scale: 1:3000 (A	rch E)	Date	Oc	tober 2021
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 N:\Brian\9811V - Walker Uppers Quarry\Drawings\Site Plan\CAD\9811V - Site Plan - Proposed Scenario.dwg

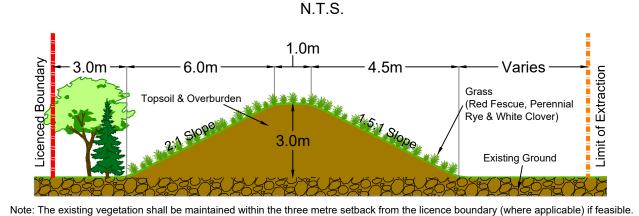
- A. General
- 1. Area to be licenced Area to be extracted
- 103.6 ha. (±256.0 ac.) 89.1 ha. (±220.2 ac.)
- 2. The maximum amount of aggregate to be removed from this site in any calendar year is 1,800,000 tonnes. 3. In the event that Walker obtains permission from the City of Niagara Falls to extract the road allowance(s), the licensee may apply to the MNDMNRF to amend the licence and site plan to expand the licence boundary to include the road allowance directly adjacent to the licence boundary (i.e. Upper's Lane and/or the road allowance between Lots 120 and 136). An expansion to the licence boundary for this purpose will not require a new licence
- under Section 7 of the Aggregate Resources Act (ARA).
- 4. All technical reports have taken into consideration the potential removal of the road allowance(s).
- 5. Table 1 on this drawing identifies the number of sensitive receptors within 500 metres of the licence boundary and the distance from the licence boundary to each receptor.
- B. Hours of Operation
- 1. The proposed quarry will have the following hours of operation:

Monday to Friday	Saturday	Sunday
7:00 am to 7:00 pm	7:00 am to 7:00 pm	N/A
8:00 am to 6:00 pm	N/A	N/A
7:00 am to 7:00 pm	7:00 am to 7:00 pm	N/A
24 hours per day	24 hours per day	24 hours per day
7:00am to 7:00pm	7:00am to 7:00pm	N/A
24 hours per day	24 hours per day	24 hours per day
24 hours per day	24 hours per day	24 hours per day
24 hours per day	24 hours per day	24 hours per day
	7:00 am to 7:00 pm 8:00 am to 6:00 pm 7:00 am to 7:00 pm 24 hours per day 7:00am to 7:00pm 24 hours per day 24 hours per day	7:00 am to 7:00 pm7:00 am to 7:00 pm8:00 am to 6:00 pmN/A7:00 am to 7:00 pm7:00 am to 7:00 pm24 hours per day24 hours per day7:00am to 7:00pm7:00am to 7:00pm24 hours per day24 hours per day

C. Proposed Entrances/Exits and Fencing

- 1. For the Mid Extraction Area:
 - a. All traffic for operations will enter and exit the Mid Extraction Area from Upper's Lane using a main entrance/exit in the location generally shown on the plan view.
 - b. If an entrance/exit off of Upper's Lane is not permitted, traffic for operations will enter and exit the Mid Extraction area from Thorold Townline Road. If approved, the site plan will be updated to accurately depict the location of the entrance/exit off of Thorold Townline Road.
- 2. For the South Extraction Area:
- a. Material will be transported to the Mid Extraction Area for processing via a conveyor over the unopened road allowance between Lots 120 and 136. Limited traffic required for operations will enter and exit the South Extraction Area via a crossing over the unopened road allowance between Lots 120 and 136, subject to approval from the City, in the location generally shown on the plan view.
- b. If permission to cross the unopened road allowance is not granted, traffic for operations will enter and exit the South Extraction area from Thorold Townline Road. If approved, the site plan will be updated to accurately depict the location of the entrance/exit off of Thorold Townline Road.
- 3. For the North Extraction Area: a. All traffic for operations will enter and exit the North Extraction Area from Upper's Lane using a main entrance/exit in the locations generally shown on the plan view.
- b. If an entrance/exit off of Upper's Lane is not permitted, traffic for operations will enter and exit the North Extraction area from Thorold Townline Road. If approved, the site plan will be updated to accurately depict the location of the entrance/exit off of Thorold Townline Road.
- 4. Only one operational entrance/exit will be utilized at any one time.
- 5. Once established, each operational entrance/exit shall be gated. All gates shall be kept closed during hours of non-operation and shall be maintained throughout the life of the licence.
- 6. The licence boundaries shall be fenced in the locations shown on the plan view (prior to the commencement of operations) and shall be maintained for the life of the licence with upkeep during periodic inspections (see Section N Variations from Control and Operation Standards on this drawing). D. Drainage and Siltation Control
- 1. Silt fencing/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. Stumps and brush cleared will be burned (with applicable permits), used for shoreline habitat enhancement or
- mulched for use in progressive rehabilitation. 3. Areas of the site will be stripped of topsoil/overburden in stages in accordance with the phases. Topsoil and overburden will be stripped and stored in berms and/or stockpiles wherever feasible.
- 4. Topsoil and overburden shall be placed in perimeter acoustic/visual berms, pond construction, watercourse realignment or used immediately for progressive rehabilitation in this licence or existing Licence Numbers 11175 and 4437 (see Section N Variations from Control and Operation Standards on this drawing).
- 5. 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 **M. Scrap and Recycling** remain a minimum of 30 metres from the licence boundary and 90 metres from a property with a residential use.
- 6. Temporary topsoil and overburden stockpiles which remain for more than one year shall have their slopes vegetated to control erosion. Seeding shall not be required if these stockpiles have vegetated naturally in the first
- F. Setbacks, Berms and Screening
- Setbacks are 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. Furthermore, areas within the setbacks will be accessed as necessary to perform general site servicing, maintenance (berming, fencing etc.) and progressive rehabilitation. See Section N Variations from Control and Operation Standards on drawing 2 of 6.
- 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" (on this drawing), "Typical Visual Berm Detail" (on drawing 4 of 6) and, more specifically, berms adjacent to Beechwood Road will be constructed in accordance with "Typical Berm - Adjacent to Beechwood Berm Detail" (on this drawing). Where the proposed berm transects the existing watercourse along the north perimeter, a culvert shall be installed in accordance with DFO requirements. Culverts will also be installed under berms, where necessary, to maintain existing drainage to and from off-site and to the existing watercourse. All proposed berms and will be vegetated and maintained to control erosion. Temporary erosion control will be implemented as required.
- Perimeter acoustic berms may be removed for final rehabilitation in the final Phase when they are no longer required for noise attenuation.
- . Any natural treed buffer areas in the setbacks will be maintained where feasible subject to berm requirements. 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. Once the watercourse realignment has been completed, surface water will be discharged from the sumps to the realigned watercourse in Phase 1B.
- Sump: During quarry development, a portable submersible pumps will be installed in each Initial Sinking Cut Area for the purpose of dewatering to maintain a dry working area and/or aggregate washing. Water will be pumped from the sumps to a pond where it is either used for aggregate washing or discharged to the existing watercourse. N. Variations from Control and Operation Standards ne sumps shall be relocated (as required) within each extraction area during the operational life of the quarry
- 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 (ranging in elevation from 141 masl in the southwest to 149 masl in the northeast portions of the site), corresponding to the geologic base of the Gasport dolostone of the Lockport Group.
- 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. 3. For the "Watercourse Realignment Transition Area", the maximum depth of extraction is approximately 1 metre
- (down to an elevation of 174 masl) and any extraction in the "Watercourse Realignment Transition Area" shall be completed as part of site preparation (construction of compensatory ponds). No drilling or blasting shall be permitted in the "Watercourse Realignment Transition Area".
- 4. Internal haul road locations shall vary as extraction progresses and will be located on the quarry floor with the exception of at grade crossings. 5. Blasted aggregate will be transported back to the mobile crusher plant and processing area on the quarry floor for
- processing and shipping. 6. An office/scale house and weigh scale will be established on site. A maintenance shop and shed(s) may be
- constructed on site. Portable office/storage trailers and structures associated with fuel storage may be brought onto the site for temporary periods for uses associated with quarry activity. All structures shall remain 30 metres from the licence boundary / Trans Canada Pipelines easement or 90 metres from the licence boundary if the boundary abuts land that is used for residential purposes or is restricted to residential use by the Zoning By-law at the time the licence is issued.
- Aggregate stockpiles (including recyclable material) shall be located within the limits of extraction and remain a minimum of 30 metres from the licence boundaries (except where the licence boundaries abut Upper's Lane and the unopened road allowance - See Section N Variations from Control and Operation Standards on this drawing) and 90 metres from a property with a residential use.

Typical Acoustic Berm Detail



I. Equipment and Processing

- permitted within the North and Mid Extraction Areas inclusive.
- boundary and 90 metres from a property with a residential use.
- and then the final quarry floor as space becomes available.
- location shown on the plan view for the life of the quarry.
- drawing 4 of 6.
- processing plant, subject to permit approval from MECP.
- 7. Equipment to be used onsite may include, but shall not be limited to: a. Working Face - 1 silenced rock drill; 1 loader;
- stockpiles):
- motor, conveyor motor, oven motor, pug mill (door and motor); d. Conveyor(s);
- e. Generator(s) (diesel-fueled); and
- f. Rock trucks, haul trucks, shipment trucks and fuel trucks.
- Certificate of Approval will be obtained for processing equipment to be used on site.
- progresses horizontally and vertically.
- 10 watercourse corridor, as well as other quarry related construction projects will be utilized on site.
- J. Frequency / Timing of Blasts
- 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. See Section D on drawing 4 of 6 for detailed blasting requirements.
- 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 MNDMNRF). 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 doubled sided or placed in containment facilities large enough to hold the tanks maximum
- volume.
- 4. A Spills Contingency Plan shall be prepared and implemented prior to site preparation. The Spills Contingency Plan shall be available on site and all employees and contractors shall be informed and required to comply with this plan.

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.
- c. The quarry operator shall commence recovery procedures by collecting the spilled substance into containers.
- d. The soil in the area affected by the spill or leak shall be removed and disposed of at a location prescribed by the MECP. Ministry of Environment, Conservation and Parks Niagara District Office Garden City Tower 9th Floor Suite 15
- 301 St. Paul Street St. Catharines, Ontario L2R 7R4 Spills Action Centre: 1-800-268-6060

- 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
- disposed of in accordance with the Environmental Protection Act.
- 4. Scrap shall not be stored within 30 metres of any body of water or the licence boundary and shall be kept in close proximity to the main processing plant.
- 5. Recycling of asphalt, concrete, porcelain and glass shall be permitted on-site.
- 6. Recyclable asphalt materials shall not be stockpiled within:
- 6.1. 30 metres of any waterbody or man-made pond; or
- 6.2. 2 metres of the ground water table. 7. Recyclable material shall be kept in close proximity to the main processing plant.
- 8. Rebar or other structural metal shall be separated from recyclable aggregate material during processing and
- placed in a designated scrap pile on-site which shall be removed on an o-going basis. 9. Recycled aggregate shall be removed on an on-going basis.
- 10. Recycling activities shall not interfere with the operational phases of the site or with rehabilitation.
- 11. Once the site is depleted, no further importation of recyclable material shall be permitted.
- 12. Once final rehabilitation has been completed and approved in accordance with the site plan, all recycling operations shall cease.
- 13. The site shall be kept in an orderly condition.

Variations from Control and Operation Standards

No.	Variation
	Extraction shall occur within 30 metres but no closer than 15 metres from the Upper's Lane road allowance and the unopened road allowance between Lots 120 and 136.
1	In addition, as part of construction of any access shown on the Site Plan and the existing watercourse realignment, extraction may occur: - Within the 15 metre setback from the Upper's Lane road allowance and the unopened road
	allowance between Lots 120 and 136 for access purposes, - Within the 15 metre setback from the north and south boundaries of the site for riparian corridor construction and
	- Within the 30 metre setback from Thorold Townline Road for riparian corridor construction.
	Overburden may be removed from the extraction setback area to permit: - Extraction within 30 metres but no closer than 15 metres from Upper's Lane road allowance and the unopened road allowance between Lots 120 and 136
2	Overburden and aggregate may be removed from the excavation setback areas to permit the construction of any access or to implement the existing watercourse realignment as follows:

2	construction of any access or to implement the existing watercourse realignment as follows:
	- Within the 15 metre setback from the Upper's Lane road allowance and the unopened road
	allowance between Lots 120 and 136 for access purposes,
	- Within the 15 metre setback from the north and south boundaries of the site for riparian corridor
	construction and
	- Within the 30 metre setback from Thorold Townline Road for riparian corridor construction.
0	Topsoil and overburden may be moved between this Licence and Licence Numbers 11175 & 4437

to provide for effective rehabilitation of these licences. A portion of the quarry face shall remain vertical. See Rehabilitation Plan, drawing 5 of 6. The licence boundary for the North Extraction Area shall not be fenced on or west of the Trans Canada Pipeline easement. Fencing shall be erected on the eastern extent of the easement.

Typical Berm - Adjacent to Beechwood Road Detail	
N.T.S.	
Quarry	RO
1.0m 6.0m Grass (Red Fescue, Perennial Rye & White Clover) 3.0m Existing Ground Dete: Construct berm in close proximity to limit of extraction to provide additional vegetative screening along Beechwood R	peo XX Licence Boundary

1. A portable processing plant (including primary, secondary and tertiary crushing and screening units) will be 2. Processing shall be located within the limit of extraction and remain a minimum of 30 metres from the licence

During the sinking cuts and early phases of operation, the primary crusher will be integrated into a single processing plant located near the working face. In later phases, the primary crusher will split from the single integrated plant and start to follow the working face. The processing plant, which contains the secondary and tertiary crushers, will remain close to the quarry entrance. The processing plant will be located at varying elevations, beginning at the top of rock during the sinking cut portion of operations, and moving to the first bench

Once processing has progressed to Phase 2A, a hot mix asphalt (HMA) batch plant facility shall be established on the quarry floor (in the location shown on the plan view) in Phase 1A. The HMA batch plant shall remain in the

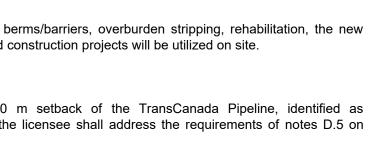
5. In Phase 4, the portable processing plant shall require additional shielding in accordance with note A.5 on 6. A wash plant and temporary wash ponds may be established and located to move together with the portable

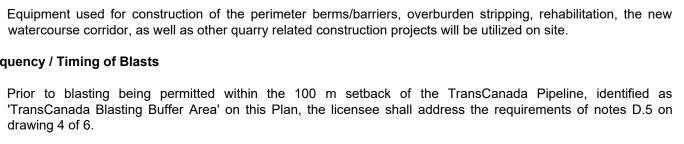
b. Processing - 1 portable processing plant including crushers, screeners, and stackers; 2 loaders (at c. Asphalt - 1 asphalt plant; 2 loaders, 1 compressor vent, 1 dust controller blower (motor and stack); elevator

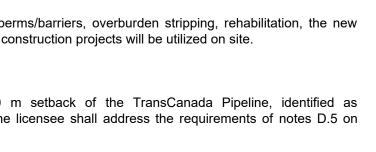
8. If required, an Environmental Compliance Approval will be obtained for processing equipment to be used on-site.

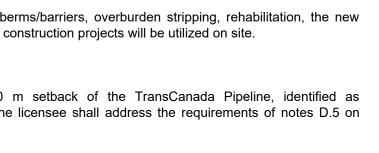
All processing equipment is subject to applicable permitting under MECP Environmental Compliance Approvals and Ontario Water Resources Act where water use requires water taking and/or discharge. If required, a Wash pond(s) and sump(s) may be permitted in accordance with Environmental Compliance Approval or Permit to Take Water Requirements. The pond(s) and sump(s) will move throughout operations and as extraction

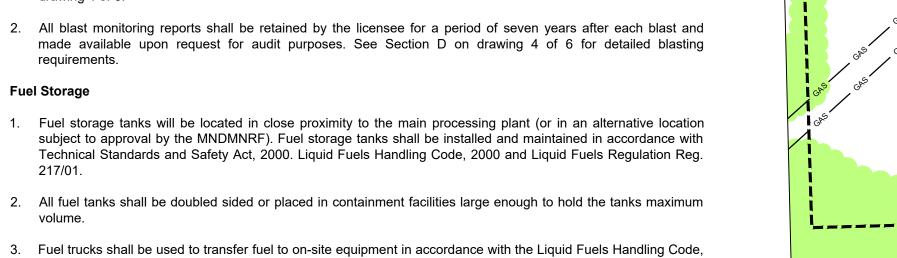
1. Prior to blasting being permitted within the 100 m setback of the TransCanada Pipeline, identified as 'TransCanada Blasting Buffer Area' on this Plan, the licensee shall address the requirements of notes D.5 on









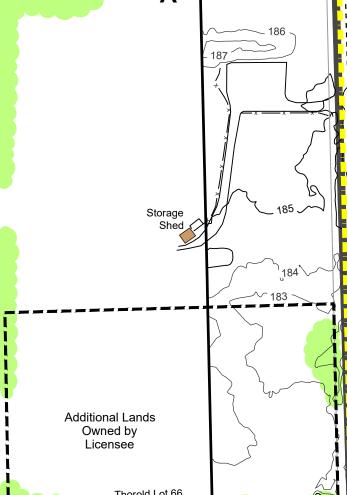


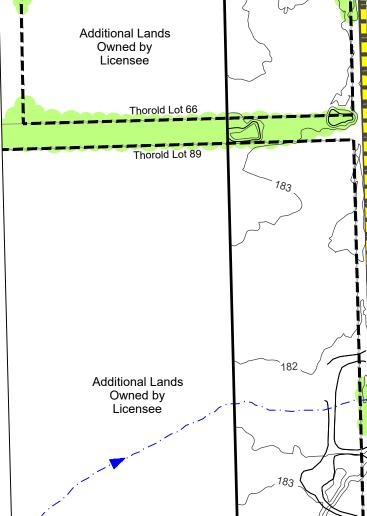
Standard

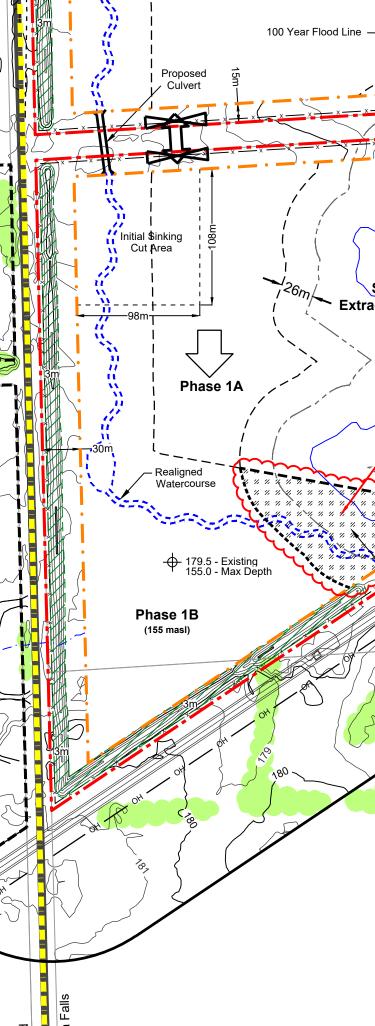
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(1) 11

-----Paintball Facility 183 X-







Added hatching to identify extent of

Phase 2E

(155 mast)

—100m——

Initial Sinking

Cut Area

Phase 1

(155 masl)

Realigned

Watercourse

Phase 2A

Additional Lands

Owned by

Licensee

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Thorold Lot 43

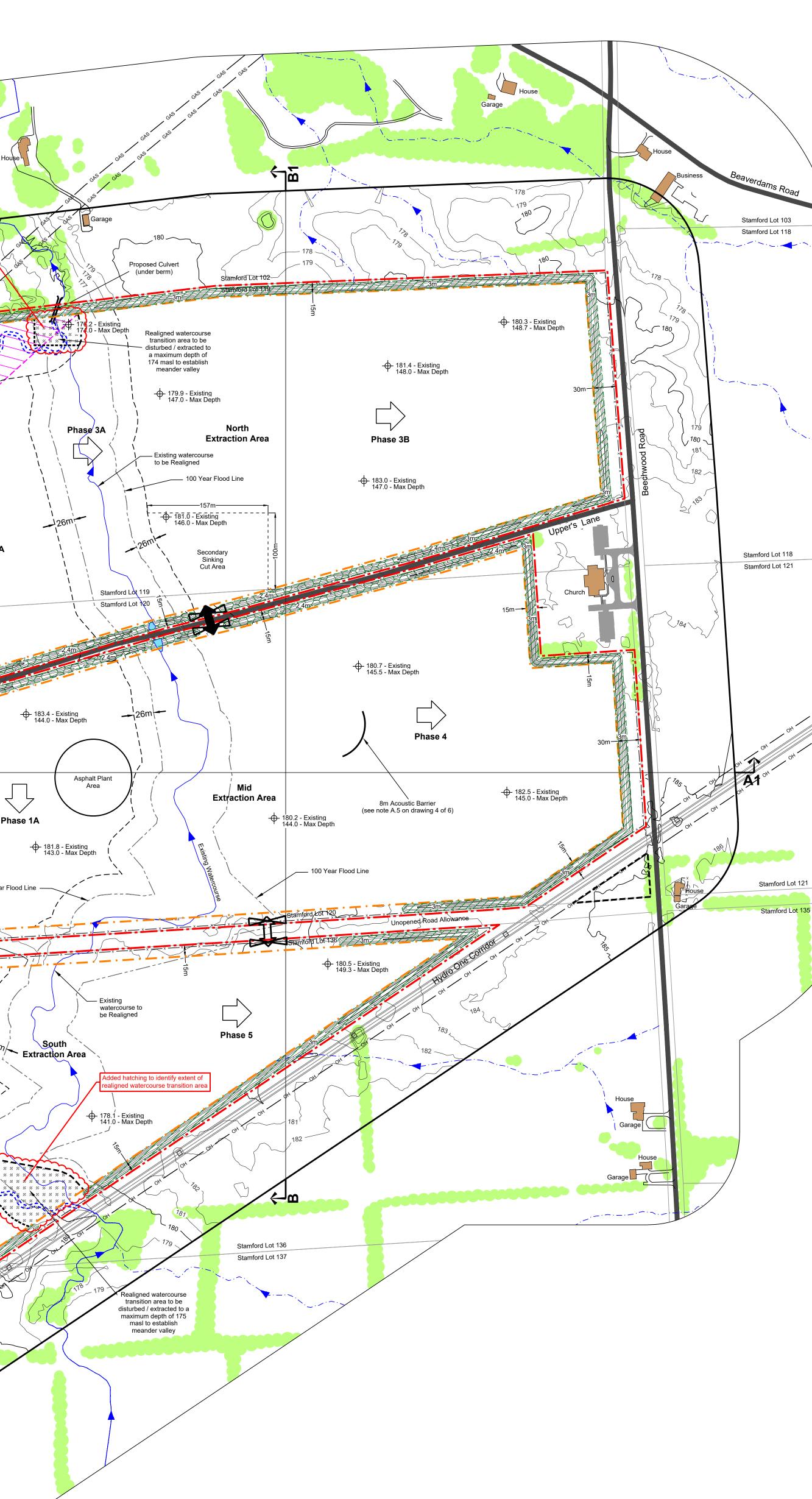
Additional Lands

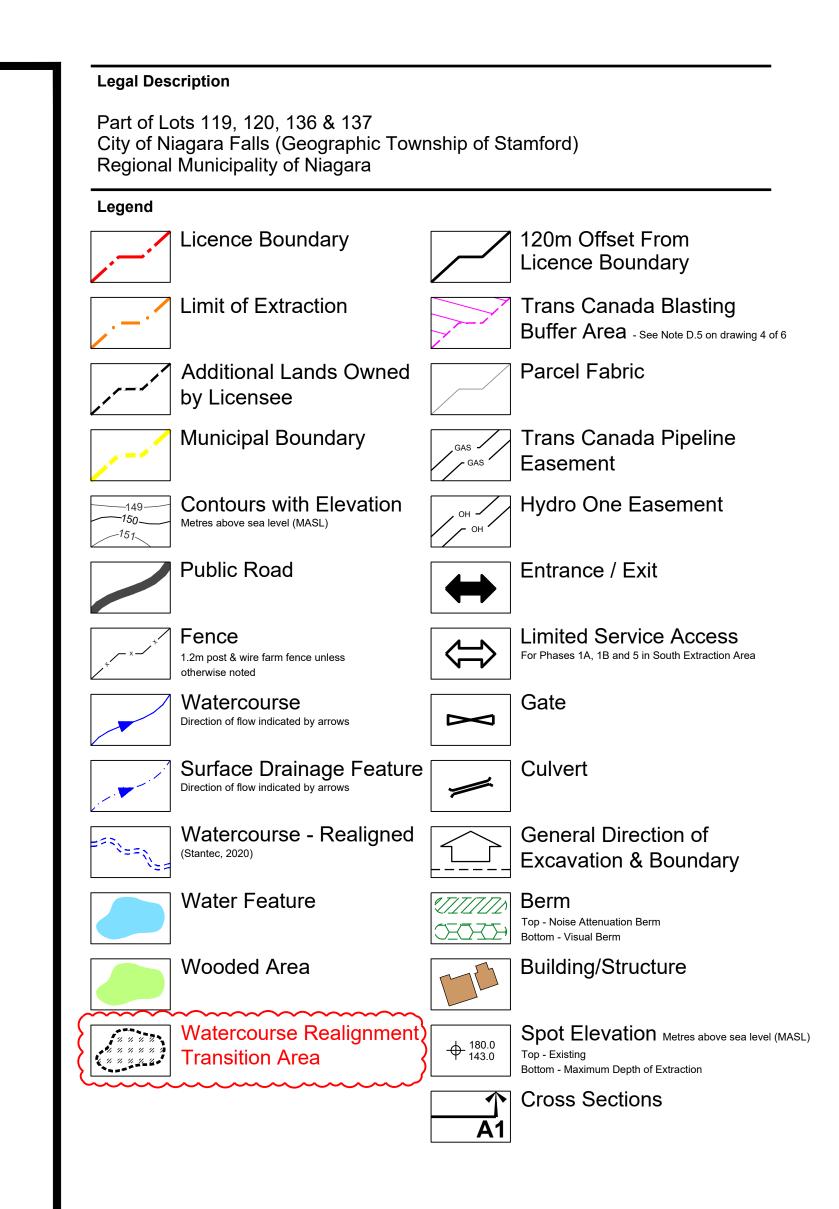
Owned by

Licensee

							Table 1: Rece	ptors Within	500m of Lice	nce Boundary							
Receptor	Address	Distance	Receptor	Address	Distance	Receptor	Address	Distance	Receptor	Address	Distance	Receptor	Address	Distance	Receptor	Address	Distance
101	10148 Beaverdams Road	184 m	121	5695 Osprey Avenue	374 m	141	9349 Madison Crescent	415 m	161	9245 Shoveller Drive	489 m	181	9414 Shoveller Drive	416 m	201	9461 Eagle Ridge Drive	427 m
102	10138 Beaverdams Road	442 m	122	5687 Osprey Avenue	362 m	142	9337 Madison Crescent	423 m	162	9245 Shoveller Drive	495 m	182	9404 Shoveller Drive	423 m	202	9500 Eagle Ridge Drive	474 m
103	9722 Beaverdams Road	234 m	123	5679 Osprey Avenue	350 m	143	9325 Madison Crescent	434 m	163	9312 Madison Crescent	417 m	183	9394 Shoveller Drive	428 m	203	9494 Eagle Ridge Drive	477 m
104	9582 Beaverdams Road	151 m	124	5671 Osprey Avenue	339 m	144	9315 Madison Crescent	445 m	164	9324 Madison Crescent	404 m	184	9374 Shoveller Drive	443 m	204	9490 Eagle Ridge Drive	478 m
105	9417 Beaverdams Road	447 m	125	5663 Osprey Avenue	333 m	145	9245 Shoveller Drive	469 m	165	9336 Madison Crescent	390 m	185	9364 Shoveller Drive	450 m	205	9484 Eagle Ridge Drive	480 m
106	9337 Beaverdams Road	475 m	126	5655 Osprey Avenue	321 m	146	9245 Shoveller Drive	461 m	166	9352 Madison Crescent	370 m	186	9354 Shoveller Drive	460 m	206	9440 Eagle Ridge Drive	484 m
107	5584 Beaverdams Road	81 m	127	5647 Osprey Avenue	311 m	147	9245 Shoveller Drive	453 m	167	9366 Madison Crescent	354 m	187	9344 Shoveller Drive	467 m	207	9440 Eagle Ridge Drive	495 m
108	5769 Beaverdams Road	287 m	128	5639 Osprey Avenue	299 m	148	9245 Shoveller Drive	447 m	168	9380 Madison Crescent	338 m	188	9334 Shoveller Drive	478 m	208	5772 Osprey Avenue	499 m
109	5821 Beaverdams Road	360 m	129	5631 Osprey Avenue	290 m	149	9245 Shoveller Drive	440 m	169	5610 Osprey Avenue	311 m	189	9324 Shoveller Drive	488 m	209	9440 Eagle Ridge Drive	494 m
110	5783 Osprey Avenue	490 m	130	5623 Osprey Avenue	284 m	150	9245 Shoveller Drive	410 m	170	5622 Osprey Avenue	323 m	190	9314 Shoveller Drive	494 m			
111	5775 Osprey Avenue	480 m	131	5615 Osprey Avenue	271 m	151	9245 Shoveller Drive	425 m	171	5632 Osprey Avenue	331 m	191	9355 Eagle Ridge Drive	494 m			
112	5767 Osprey Avenue	470 m	132	5607 Osprey Avenue	259 m	152	9245 Shoveller Drive	435 m	172	5642 Osprey Avenue	341 m	192	9365 Eagle Ridge Drive	481 m			
113	5759 Osprey Avenue	459 m	133	9445 Madison Crescent	280 m	153	9245 Shoveller Drive	443 m	173	5652 Osprey Avenue	350 m	193	9375 Eagle Ridge Drive	469 m			
114	5751 Osprey Avenue	448 m	134	9433 Madison Crescent	299 m	154	9245 Shoveller Drive	457 m	174	5668 Osprey Avenue	362 m	194	9385 Eagle Ridge Drive	471 m			
115	5743 Osprey Avenue	438 m	135	9421 Madison Crescent	316 m	155	9245 Shoveller Drive	467 m	175	9405 Shoveller Drive	374 m	195	9395 Eagle Ridge Drive	464 m			
116	5735 Osprey Avenue	424 m	136	9409 Madison Crescent	334 m	156	9245 Shoveller Drive	476 m	176	9395 Shoveller Drive	383 m	196	9045 Eagle Ridge Drive	457 m			
117	5727 Osprey Avenue	415 m	137	9397 Madison Crescent	351 m	157	9245 Shoveller Drive	485 m	177	9385 Shoveller Drive	392 m	197	9415 Eagle Ridge Drive	448 m			
118	5719 Osprey Avenue	404 m	138	9385 Madison Crescent	371 m	158	9245 Shoveller Drive	498 m	178	9446 Shoveller Drive	400 m	198	9425 Eagle Ridge Drive	445 m			
119	5711 Osprey Avenue	393 m	139	9373 Madison Crescent	391 m	159	9245 Shoveller Drive	474 m	179	9434 Shoveller Drive	405 m	199	9435 Eagle Ridge Drive	443 m			
120	5703 Osprey Avenue	383 m	140	9361 Madison Crescent	407 m	160	9245 Shoveller Drive	482 m	180	9424 Shoveller Drive	412 m	200	9445 Eagle Ridge Drive	436 m			

ent to Beechwood Road Detail N.T.S.





Site Plan Acronyms

- 1. ARA Aggregate Resources Act
- 2. MNDMNRF Ministry of Northern Development, Mines, Natural Resources and Forestry
- 3. MHSTCI Ministry of Heritage, Sport, Tourism and Culture Industries
- 4. MECP Ministry of the Environment, Conservation and Parks 5. MGCS - Ministry of Government and Consumer Services
- 6. DFO Department of Fisheries and Oceans Canada
- 7. ECA Environmental Compliance Approval
- 8. BMPP Best Management Practices Plan
- 9. PTTW Permit to Take Water
- 10. MASL Metres above sea level
- 11. ROW Right of way 12. HMA - Hot mix asphalt

Site P	Plan Amendmen	ts			
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			+		
No.	Date	Description	Ву		
Site P	Plan Revisions (I	Pre-Licencing)			
1	January 2022	Removed note H.3, revised note I.8, added note I.9. and hatched watercourse realignment area.	C.P.		
			+		
			+		
	Dete	Description			
No.	Date	Description	Ву		
	113 CC	PLANNIN URBANDESI & LANDSCA ARCHITECTU DULIER STREET, BARRIE, ON, L4M 1H2 P: 705.728.0045 F: 705.728.2010 WWW.MHBCP	GN APE JRE		
МНВО	C Stamp	MHBC Stamp			
	Debra Wal	lker Christopher Poole N			
٩	Is authorized by the Ministry of Northern Development, Nores, Natural Resources and Forentry pursuant to Subsection 0.2 (e of Ontario Regulated 0.1 7 to prepare and certify site plans.				
Appli	cant	• •			
		Walker Aggregates Inc. 2800 Thorold Townline Road			

	Distance	
!	427 m	
2	474 m	
2	477 m	
!	478 m	
2	480 m	
	484 m	
1	495 m	
	499 m	
	494 m	

Project Upper	's Quarry	
MNDMNRF Licence Reference No.	Applicant's Signature	
Plan Scale: 1:3000 (Arch E)	Date Oc	tober 2021
	Drawn By C.P.	File No.
Meters	Checked By D.W.	- 9811V
File Name Ope	erational Pla	n
Drawing No.	2 of 6	

 File Path
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P.O. Box 100

L2V 3Y8

Thorold, Ontario

waikei

aggregates

- A. General
- 1. This plan depicts a schematic operations sequence for the property based on the best information available at the time of preparation.
- 2. Phases do not represent any specific or equal time period.
- 3. 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
- 1. Generally, site preparation in Phases 1 and 2 to include but not limited to:
- a. Constructing the main entrance and cross over(s) in accordance with entrance permit approvals b. Establishing fencing around licenced boundary (see Section N Variations from Control and Operation Standards on drawing 2 of 6)
- c. Removal of trees and existing buildings (in accordance with all site plan requirements and applicable regulations)
- d. Proceed with stripping of overburden/topsoil from Phase 1 and, if necessary, Phase 2
- e. Construction of berms/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.
- 3. 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)
- 1. Commence extraction in the 'Initial Sinking Cut Area' identified in the Mid and South Extraction Area (see plan view for location).
- 2. Phase 1A shall be extracted in up to three (3) lifts to a depth ranging between 140 masl and 145 masl. 3. Phase 1B shall be extracted in one (1) to two (2) lifts to a depth of 155 masl.
- 4. 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 **F.** Phase 4 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 1. Proceed with stripping of overburden/topsoil. locations will move with the quarry face until the final quarry depth is reached in each extraction area. At this point, a permanent sump shall 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 178 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
- 7. Commence site preparation of Phase 2.

D. Phase 2 (2A & 2B)

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

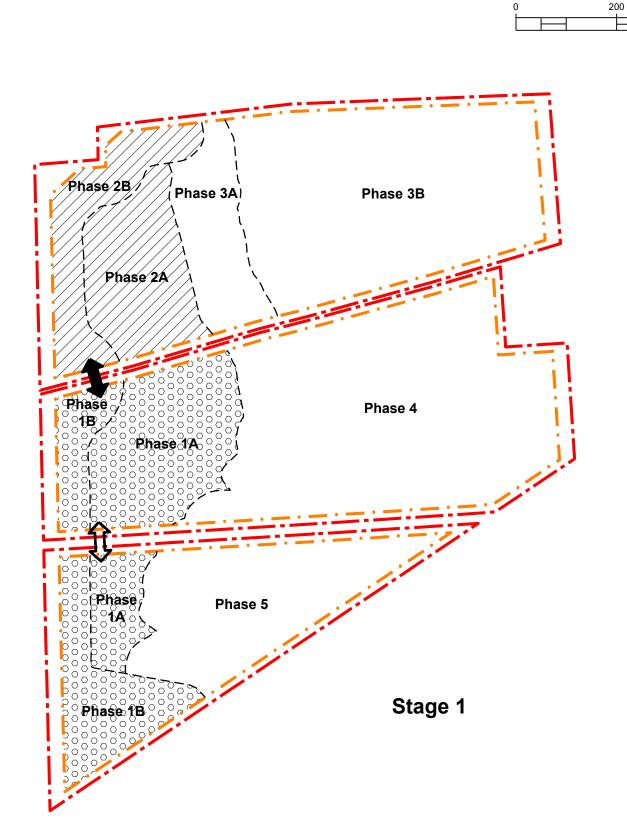
- site. The discharge, pond and forebay locations will move with the quarry face until the final quarry depth is reached. At this point, a permanent sump will be established.
- and 4437.
- 7. Commence site preparation of Phase 3.
- E. Phase 3 (3A & 3B)
- 1. Proceed with stripping of overburden/topsoil.
- Phase 3A. proceed before extraction in Phase 3A.
- discharge water to a man-made pond for aggregate washing or to a sediment forebay before being discharged to will be established.
- 5. Phase 3A and 3B shall be extracted in up to three (3) lifts to a depth ranging between 145 masl to 149 masl.
- 6. Once the existing watercourse has been realigned, extraction in Phase 3A may proceed.
- 8. Commence site preparation of Phase 4.

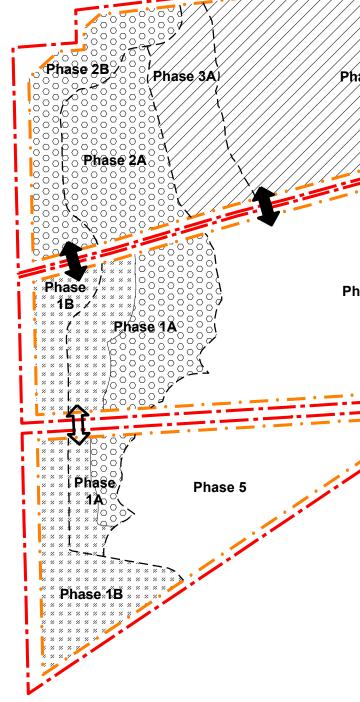
- 2. Commence Phase 4 extraction in an easterly direction, moving gradually from north to south.

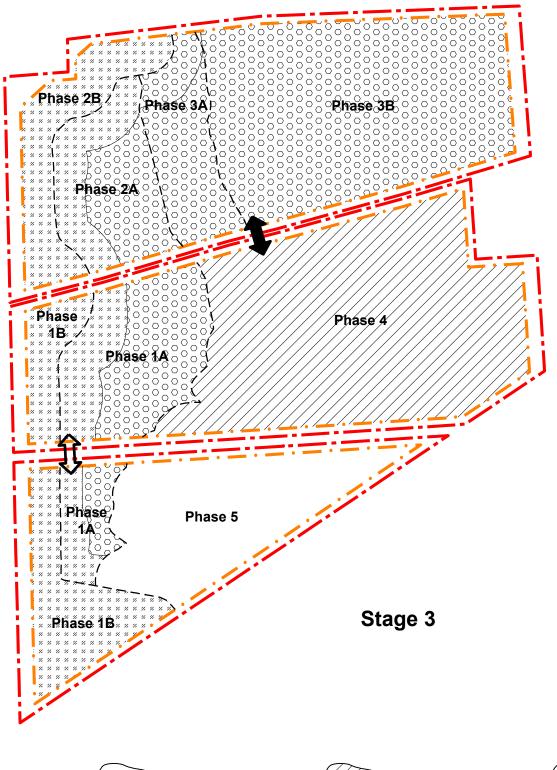
- G. Phase 5 1. Proceed with stripping of overburden/topsoil.

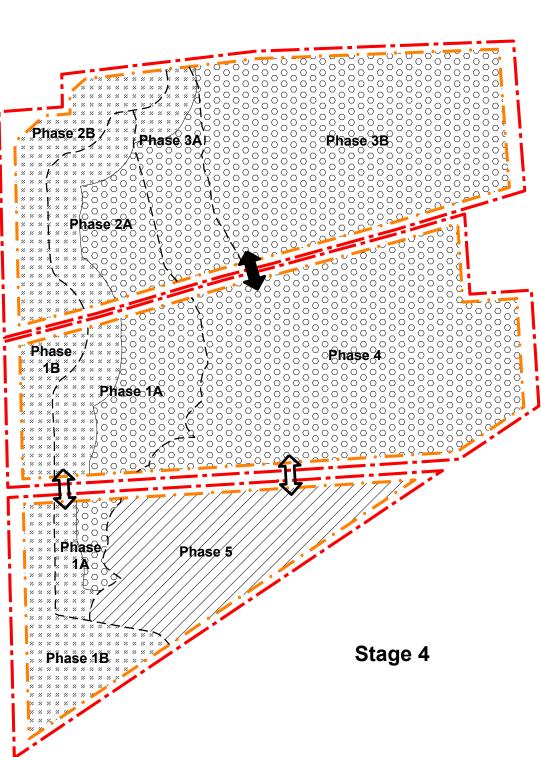
- there is sufficient separation from the quarry floor working areas. H. Final Phase
- ramp)
- scrap from the site.
- 3. Continue with final rehabilitation of the site. Complete quarry face backfilling on the remaining quarry faces as identified on drawing 5 of 6.











4. 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

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 178 masl. The new watercourse and riparian wetland channel will be constructed, designed and vegetated in accordance 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

2. 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

3. In the event that watercourse relocation has not been approved or completed, extraction in Phase 3B may 4. In the event that Phase 3B is extracted before Phase 3A, a portable pump shall be utilized as necessary 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

Extraction will proceed in an easterly direction, moving gradually from north to south.

7. 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.

3. Phase 4 shall be extracted in up to three (3) lifts to a depth ranging between 142 masl in and 147 masl. 4. 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.

2. Commence Phase 5 extraction in an easterly direction, moving gradually from north to south. 3. Phase 5 shall be extracted in up to three (3) lifts to a depth ranging between 140 masl and 143 masl. 4. Continue progressive rehabilitation of the quarry perimeter where limits of extraction have been reached and

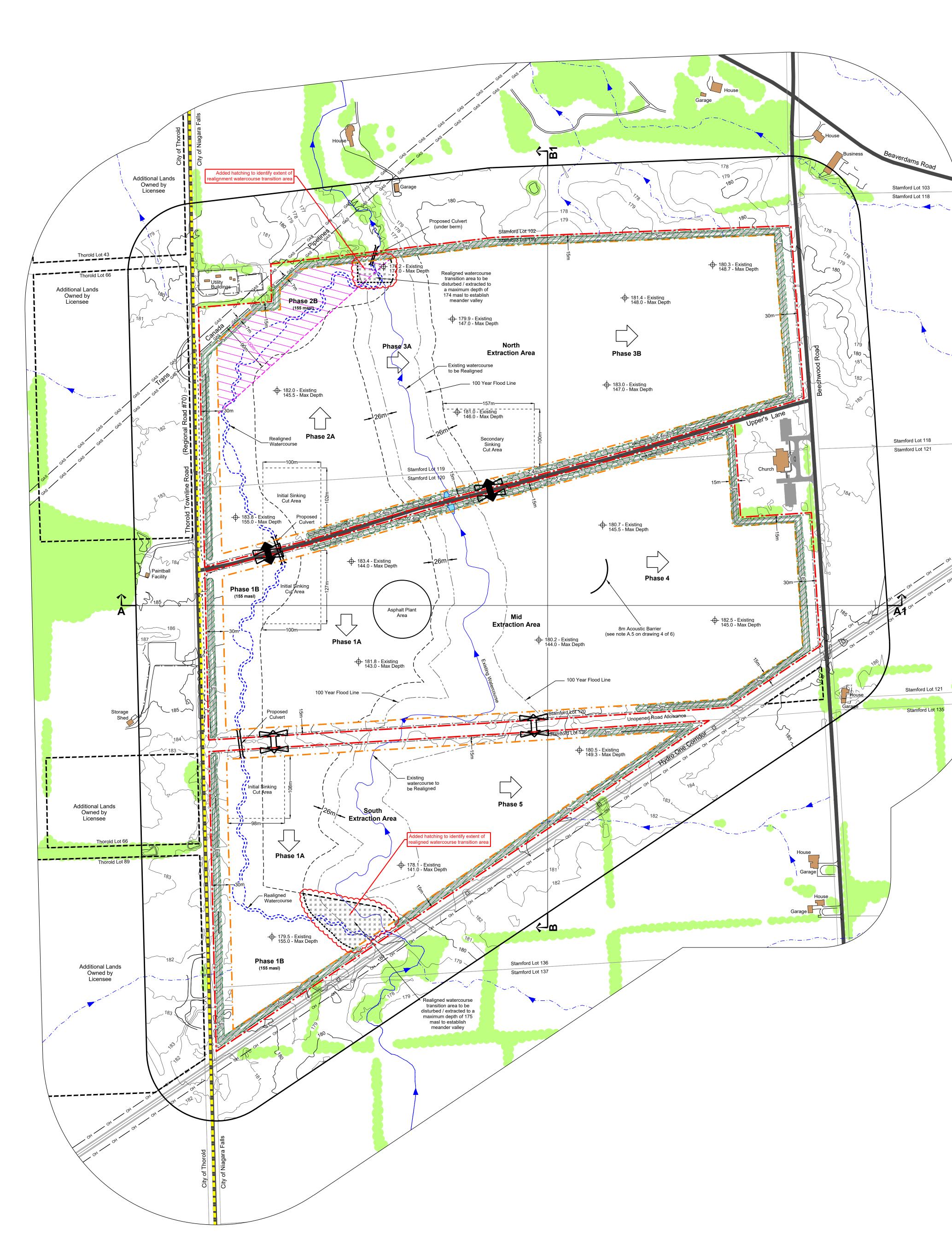
1. Complete extraction of any remaining resource in the extraction limit near the entrance in Phase 1A and 1B (e.g.

2. As part of the final operations of the site, remove office/scale house and scales and any other equipment and

Phase 4

Stage 2

Undisturbed Site Preparation O Under Extraction Progressive and Final Rehabilitation



	Municipality of Niagara		
Legend			
, — · ·	Licence Boundary		120m Offset From Licence Boundary
. — .	Limit of Extraction		Trans Canada Blasting Buffer Area - See Note D.5 on drawing 4 of 6
a a a a a a a a a a a a a a a a a a a	Additional Lands Owned by Licensee		Parcel Fabric
	Municipal Boundary	GAS GAS	Trans Canada Pipeline Easement
149 150 151	Contours with Elevation Metres above sea level (MASL)	он он	Hydro One Easement
	Public Road		Entrance / Exit
x_+	Fence 1.2m post & wire farm fence unless otherwise noted	\Leftrightarrow	Limited Service Access For Phases 1A, 1B and 5 in South Extraction Area
	Watercourse Direction of flow indicated by arrows	X	Gate
	Surface Drainage Feature Direction of flow indicated by arrows		Culvert
==:::=:::=	Watercourse - Realigned (Stantec, 2020)		General Direction of Excavation & Boundary
	Water Feature	<i>V//////</i> 0±0+0>+	Berm Top - Noise Attenuation Berm Bottom - Visual Berm
	Wooded Area		Building/Structure
	Watercourse Realignment	+ 180.0 143.0	Spot Elevation Metres above sea level (M/

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- 7. ECA Environmental Compliance Approval
- 8. BMPP Best Management Practices Plan
- 9. PTTW Permit to Take Water
- 10. MASL Metres above sea level
- 11. ROW Right of way 12. HMA - Hot mix asphalt

Site P	lan Amendmen	ts	
No.	Date	Description	Ву
Site P	lan Revisions (Pre-Licencing)	
1	January 2022	Revised note C.1 and hatched watercourse realignment area.	C.P.
No.	Date	Description	Ву
l I P c	Stamp Debra Wa s authorized by th Northern Develop latural Resources ursuant to Subsec of Ontario Regulat prepare and certif	Ministry of Is authorized by the Ministry of Nonierry evelopment, Mines, Navian Propurces and Forestry on 0.2 (e Of Control of Contr	GN PE RE
Projec		Walker Aggregates Inc. 2800 Thorold Townline Road P.O. Box 100 Thorold, Ontario L2V 3Y8	
MNDM	INRF Licence R	Reference No. Applicant's Signature	

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Drawing No.			3 of 6			

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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 plant's secondary crushers (see plan view for location). The barrier can be material stockpiles, noise walls, or a combination of both. The barrier shall extend long enough to shield receptors R4 and R5 (see plan view) from the 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. If construction activities are
- required outside of these hours, the licensee will seek permits / exemptions directly from the City in advance. 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 complaint 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. In selecting appropriate noise control and mitigation measures, consideration will be given to the technical, administrative and economic feasibility of the various alternatives.

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. 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 (as set out in the Air Quality Impact Assessment).
- . The licensee shall obtain an environmental compliance approval under the Environmental Protection Act where required to carry out operations at the quarry.
- 4. The site will operate in accordance with the Best Management Practices Plan (BMPP) for Fugitive Dust Emissions. The BMPP may be amended from time to time, considering actual impacts and operational considerations. The recommendations in the BMPP are based on the maximum daily production rates. At lower production rates, the control measures specified in the BMPP can be reduced accordingly, provided dust remains mitigated on site.
- 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.

5. The following mitigation measures shall be incorporated into the BMPP:

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. A 50 metre monitoring buffer is also identified on this drawing.
- . 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" and their respective protective buffers until:
- a. the required investigations are completed in accordance with the Stage 1 and 2 Archaeological Assessment prepared by Archaeological Research Associates Ltd. (April 2020), b. any recommendations that the respective site(s) has no further cultural heritage value or interest are made as a result of completing further investigations, and, c. the associated reports are entered into the Ontario Public Register of Archaeological Reports.
- A temporary barrier shall be established around the perimeter of each 'Archaeological Site Protected Areas Requiring
- Further Archeological Assessment" identified on this drawing as part of site preparation and in advance of extraction. 4. All soil disturbing activities within the 50 metres monitoring buffers shall be monitored by a licensed archaeologist to ensure the effectiveness of the avoidance strategy. The archaeologist shall ensure that the temporary barrier is in the appropriate location and shall be empowered to stop construction if there is a concern for impacts to an archaeological site. 'No go' instructions shall be issued to all work crews for the protected areas, and the locations of the protected areas shall be shown on all appropriate contract drawings. The protected areas shall be inspected by a licensed archaeologist once the strategy is no longer required, and the effectiveness of the strategy shall be reported to the MHSTCI
- Immediately upon issuance of the Licence, and once the construction schedule has been finalized, a licensed F. archaeologist will be retained by the licensee so that monitoring can occur where required. The remaining archaeological fieldwork will be completed upon issuance of the licence by the MNDMNRF. 6. Should deeply buried archaeology remains be found during the course of 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 G.
- immediately contact both the MHSTCI and Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services (MGCS).

D. Blasting

- 1. An attenuation study shall be undertaken by an independent blasting consultant during the first 12 months of operation in order to obtain sufficient quarry data to confirm the initial guideline parameters and assist in refining future blast . All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive
- receptors adjacent the site, or closer, with a minimum of two (2) instruments one installed in front of the blast and one installed behind the blast. Blasts shall be designed to maintain vibrations below 13mm/s at the location of the closest identified active spawning
- bed as per DFO guidelines. When blasting during active spawning season, a minimum of one supplemental vibration monitor shall be installed on the shoreline closest to the spawning bed to confirm the vibration levels. 4. 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 (1998) or any such document, regulation or guideline
- which supersedes this standard. 5. All blasts shall be monitored for ground vibration at the adjacent Trans Canada Energy High Pressure Natural Gas
- Pipeline when blasting within 100m of the pipeline or when calculations suggest vibrations in excess of 35mm/s. 6. Blasts shall be designed to maintain vibrations at the transmission towers in the Hydro One Corridor below 50mm/s or any such document, regulation or corporate policy in effect at the time. When vibration calculations suggest vibrations at the towers may exceed 35mm/s, the towers shall be monitored for ground vibration.
- Blasts shall be designed to maintain vibrations at the 4832 Thorold Townline Road utility buildings below 50mm/s. When vibration calculations suggest vibrations at the utility buildings may exceed 35mm/s, the buildings shall be monitored for ground vibration.
- . 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) or any such document, regulation or guideline which supersedes this standard.
- 9. Orientation of the aggregate extraction operation shall be designed and maintained so that the direction of the overpressure propagation will be away from structures as much as possible.
- 10. Blast designs shall be continually reviewed with respect to fragmentation, ground vibration and overpressure. Blast designs shall be modified as required to maintain compliance with current applicable guidelines and regulations. 11. Detailed blast records shall be maintained in accordance with current industry best practices.
- E. Natural Heritage

1. <u>General</u>

- a. Existing vegetation within the setbacks shall be maintained except where berms, haul roads and conveyors are b. New vegetation shall be maintained in accordance with note G.5 on this drawing
- c. Silt fencing shall be installed at the easterly limit of Phases 1A and 2A where field drainage enters the existing watercourse. Silt fencing will serve to demarcate the limit of protected area until the w ourse is diverted
- d. Stockpiling of all excavated material shall be in accordance with note H.7 on drawing 2 of 6. e. Topsoil and overburden stockpiles shall be maintained in accordance with the Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario (MNRF 2017). Stripped
- overburden and topsoil for rehabilitation shall be utilized in accordance with notes E.4, E.5 and E.6 on drawing 2 of 6. f. Dust control will be implemented in accordance with Section B on this drawing.
- g. Fuel storage shall be in accordance with the notes under Section K on drawing 2 of 6.

2. Natural Channel Design

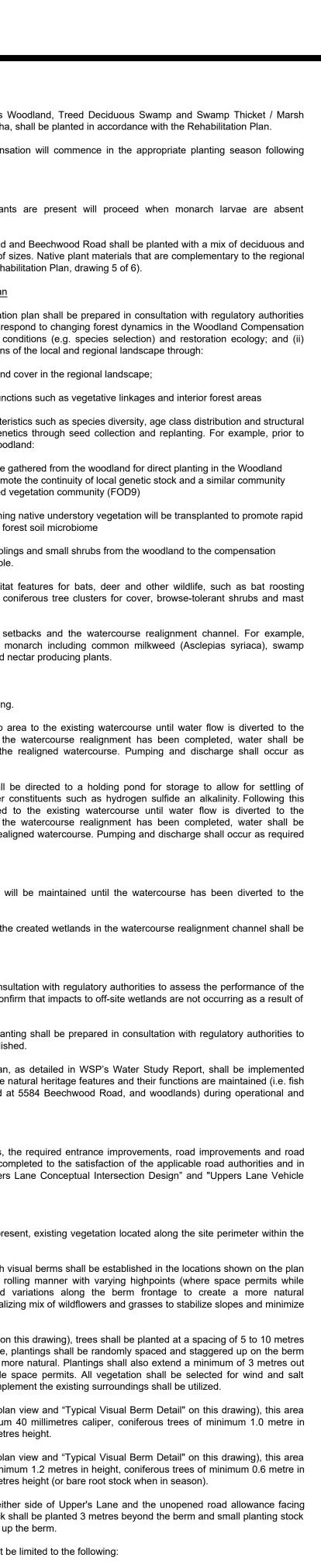
- a. The existing watercourse will remain open (not culverted) where it enters the south limit of the South Extraction b. Where the watercourse exits the North Extraction Area, a culvert will be installed to maintain the watercourse
- removed to allow for the watercourse to be open. c. As part of site preparation, a compensation pond will be constructed in the Watercourse Realignment Transition Area within Phase 2B, in accordance with the Natural Channel Design Report (Stantec 2021). The

while allowing an acoustic berm to be constructed. As part of final rehabilitation, the berm and culvert shall be

- compensation pond will be excavated to a maximum depth of 174 masl in this area and in accordance with DFO authorization. No drilling or blasting shall occur in this Transition Area. d. As extraction is completed in Phases 1B and 2B, these areas will be filled with clay overburden material to an elevation ranging between 173 to 178 masl. In accordance with the Natural Channel Design Report (Stantec
- 2021), a new watercourse channel will be constructed, vegetated and designed in these areas and will include the following design elements: d.1. Floodplain wetlands
- d.2. Fish habitat ponds, including new pike spawning habitat as well as foraging, spawning and rearing
- habitat for other fish species d.3. Creek sections
- d.4. Wood debris toe protection and wood reinforced banks
- d.5. Log sills
- d.6. Augmented riffle.
- e. Culverts will be installed under Upper's Lane and the unopened road allowance.
- f. 2:1 side slopes shall be established on the east side of the new watercourse channel down to the quarry floor.
- Once the realigned watercourse channel has been constructed in Phases 1B and 2B and adequate vegetation has been established (as confirmed by an ecologist), water from the existing watercourse will be diverted to the realigned watercourse in consultation with regulatory authorities.
- 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. Tree clearing in the woodlot shall be undertaken outside of the breeding bird period and the active bat season from March 23 and August 26.
- 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).

<u>Signi</u> a. b.	licence appro	oval	compensation			
	ificant Wildlife I	Habitat and Wildlife				
b.		clearing where milkwe 30 to April 1).	ed plants are	e present will proc	ceed when monarch	larvae are abse
	coniferous tre	s along Thorold Townlin ees and shrubs with a dscape shall be used (s	ange of sizes.	Native plant materia	als that are compleme	
Woo	dland and Wild	llife Habitat Compensat	ion Plan			
a.	to: (i) allow p Areas such	and wildlife habitat cor practices and managem as pest infestations, c t gain in the ecological	ent to respond limatic conditio	to changing forest ons (e.g. species se	dynamics in the Wood election) and restoration	dland Compensati
		easing the total area of		-		
	a.3. Impro	oving associated landso oving forest ecological	characteristics	such as species div	versity, age class distri	ibution and structu
		rsity, while retaining na emoval of the existing 2 . Tree seeds and nut	2 ha woodland:	-	tion and replanting. F nd for direct planting ii	
		composition to the r	emoved vegeta	ation community (FC		-
	a.3.2	 Leaf litter and sods establishment of a l 			ation will be transplan	ted to promote rap
	a.3.3	 Transplanting of na planting area, where 		ld small shrubs from	n the woodland to the	compensation
	struc	rporating specific wildli ctures (bat boxes or cc ucing trees;				
	plant	rporating specific plant tings that provide hab weed (Asclepias incarna	tat for monard	ch including commo		
<u>Fish</u> a.	and Fish Habit	t <u>at</u> otes D.3 and D.4 on this	s drawing.			
a. b.	Water shall	be discharged from the	e sump area t			
-	discharged f required to s	realignment channel. from the sump locatio upport fish habitat.	ns to the real	igned watercourse.	Pumping and disch	arge shall occur
C.	suspended s pond treatm watercourse	sted from the sump and solids and dissipation of ent, water will be dis realignment channel. rom the holding pond to sh habitat.	of other consti charged to th Once the wat	tuents such as hyd e existing waterco tercourse realignme	drogen sulfide an alka urse until water flow ent has been comple	alinity. Following t v is diverted to t eted, water shall
Wetla						
a.		ong the existing water realignment channel.	course will be	maintained until th	e watercourse has b	een diverted to t
b.	Once the wa maintained.	tercourse has been div	erted, the crea	ted wetlands in the	watercourse realignm	ent channel shall
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b.	dewatering.	program of compensa				-
C.		le conditions have beer echanism and continge		etailed in WSP's W	/ater Study Report. s	hall be implement
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setba	ack area shall l		•		·	
view. respe appe	. Berms shall ecting minimu	be constructed in a si m height requirement s shall be seeded with a	mooth, rolling s), and variat	manner with varyin tions along the be	g highpoints (where a erm frontage to crea	space permits wh ate a more natu
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	ance and hardi	vards the road where a iness. Native species th ting Stock" is indicated	at complemen	t the existing surrou	ndings shall be utilized	d.
	be planted wi	ting Stock" is indicated	minimum 40 r centimetres hei	nillimetres caliper, o ght.	coniferous trees of m	inimum 1.0 metre
shall heigh	re "Small Plan	th deciduous tree whips	s of minimum 1	.2 metres in height,	, coniferous trees of m ock when in season).	ninimum 0.6 metre
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- d. If the issue raised by the landowner is related to loss of water supply, the licensee shall have a qualified licensee and the results provided to the homeowner.
- e.1. Adjust pump pressure;
- e.3. Deepening of the well to increase the available drawdown, if the well deepening changes the water quality a water treatment shall be provided;
- e.4. Widening of the well to increase the available storage of water;
- e.5. Relocation of the well to another area on the property; or
- e.6. Drilling multiple wells.
- responsible for the expense to restore the water quality.
- 4. A trigger mechanism and contingency plan as set out in WSP's Level 2 Water Study Report shall be implemented.
- Peninsula Source Protection Plan as Intake Protection Zones.



Chokecherry Pin Oak Basswood White Cedar

hydrogeologist / well contractor determine the likely causes of the loss of water supply, which can result from a number of factors, including pump failure (owner's expense), extended overuse of the well (owner's expense), lack of well maintenance / well cleaning (owner's expense) or lowering of the water level in the well from the quarry development (licensee expense). This assessment process shall be carried out at the expense of the

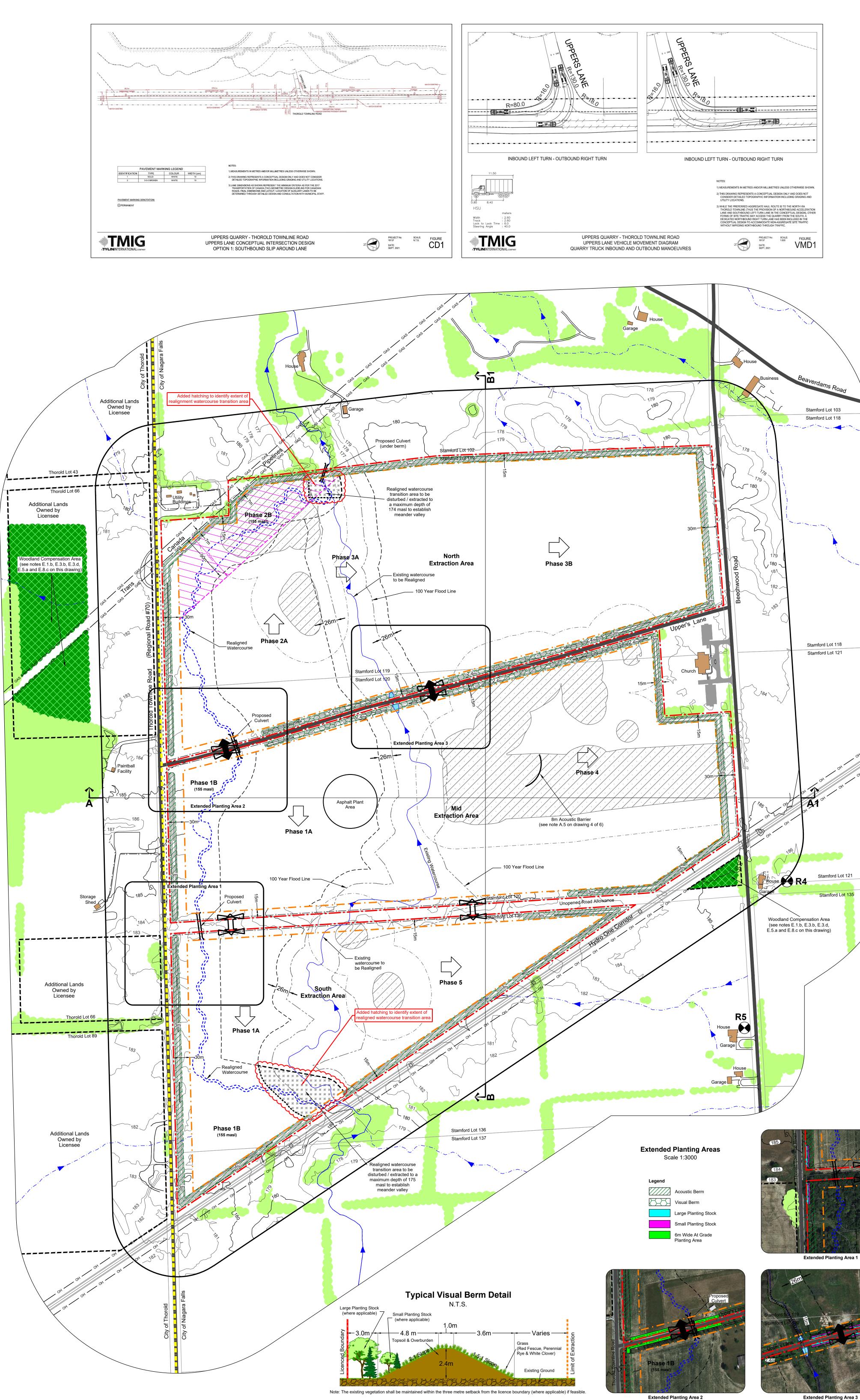
e. If it has been determined that the quarry caused the water supply interference (i.e., lowering of the water level), the licensee shall continue to supply water at their expense until the problem is rectified. The following mitigation measures shall be considered, and the appropriate measure(s) implemented at the expense of the licensee:

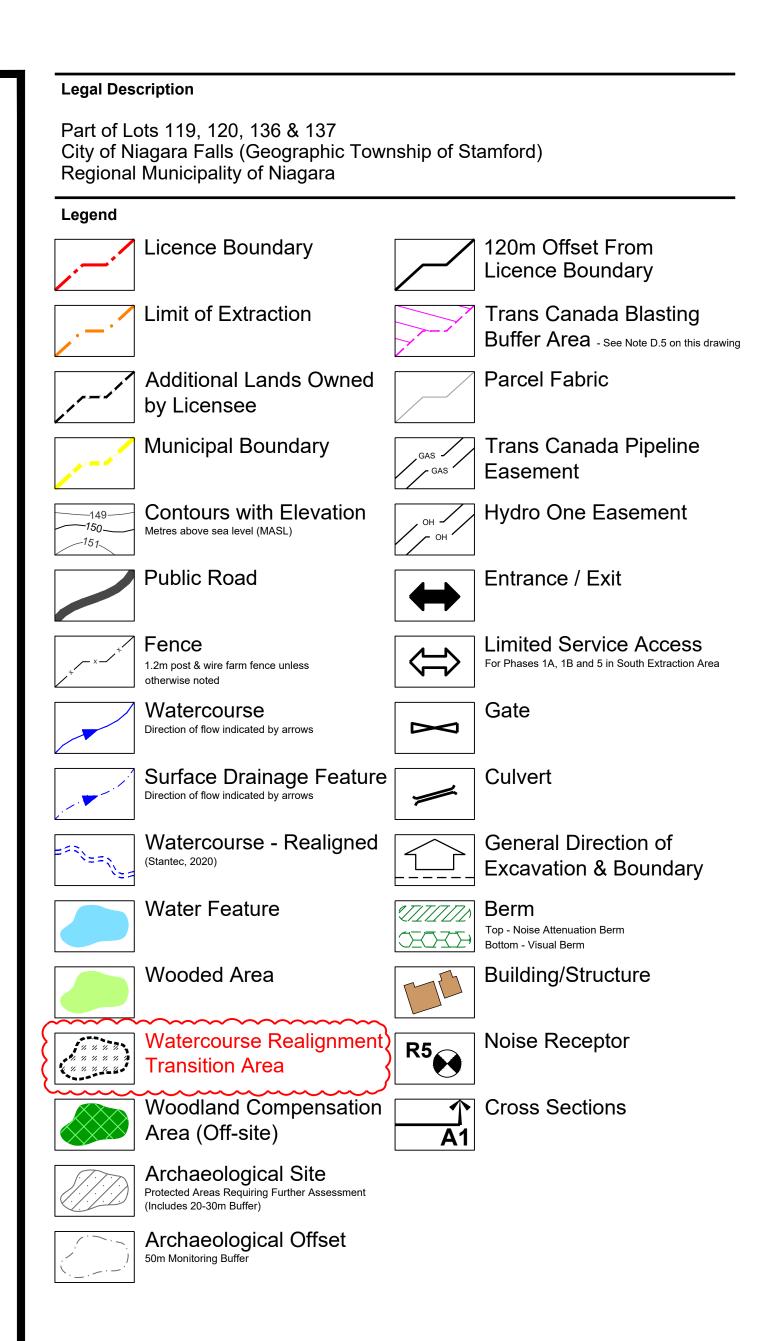
e.2. Lowering of the pump to take advantage of existing water storage within the well;

f. If the issue raised by the landowner is related to water quality, the licensee shall have a qualified hydrogeologist / well contractor determine the likely causes of the change in water quality, and review monitoring results at the quarry and background monitoring results from the baseline well survey to determine if there is any potential correlation with the quarry. If it has been determined that the quarry caused a water quality issue, the licensee shall continue to supply water at their expense until the problem is rectified. The licensee shall be responsible for restoring the water supply by replacing the well or providing a water treatment system. The licensee is

3. A spill action plan shall be carried out in accordance with the notes in Section N Spills Plan on drawing 2 of 3.

5. WSP's Water Study Report confirms that drawdown impacts do not extend to areas identified in the Niagara



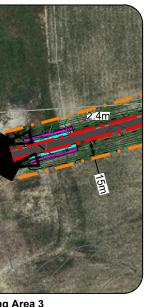


Site Plan Acronyms

- 1. ARA Aggregate Resources Act
- 2. MNDMNRF Ministry of Northern Development, Mines, Natural Resources and Forestry
- 3. MHSTCI Ministry of Heritage, Sport, Tourism and Culture Industries
- 4. MECP Ministry of the Environment, Conservation and Parks 5. MGCS - Ministry of Government and Consumer Services
- 6. DFO Department of Fisheries and Oceans Canada
- 7. ECA Environmental Compliance Approval
- 8. BMPP Best Management Practices Plan
- 9. PTTW Permit to Take Water
- 10. MASL Metres above sea level
- 11. ROW Right of way 12. HMA - Hot mix asphalt

Site P	lan Amendmen	ts				
			<u> </u>			
			<u> </u>			
No.	Date	Description	Ву			
Site P	lan Revisions (I	Pre-Licencing)				
1	January 2022	Added note H.5 and hatched watercourse realignment area.	C.P.			
No.	Date	Description	Ву			
	113 CC	PLANNIN URBANDESIG & LANDSCA ARCHITECTU	GN NPE IRE			
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Applicant Walker Aggregates Inc. 2800 Thorold Townline Road P.O. Box 100						





Upper's Quarry MNDMNRF Licence Reference No. **Applicant's Signature** Plan Scale: 1:3000 (Arch E) October 2021 CP File No. 9811V hecked By DW File Name **Report Recommendations** Drawing No. 4 of 6

 File Path
 N:\Brian\9811V - Walker Uppers Quarry\Drawings\Site Plan\CAD\9811V - Site Plan - Proposed Scenario.dwg

Thorold, Ontario

L2V 3Y8

aggregates

Project

PROGRESSIVE REHABILITATION

A. General

1. Area calculations:

a.	Licen	ced area	103.6 ha
b.	To be	extracted	89.1 ha
c.	Final	rehabilitation within licence (total)	103.6 ha
	c.a.	Lake	68.8 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

2. 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.

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. Minor deviations in operational/rehabilitation sequence will be permitted in order to adjust for any variable
- resource and market conditions. 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). The quarry will continue dewatering operations to maintain a dry quarry floor. When the rock is fully extracted, it is proposed that dewatering operations will cease and the quarry will be permitted to fill naturally with surplus precipitation, surface water and any contribution from groundwater seepage to form a lake. As shown on the plan view, shallow shoreline wetland areas shall be created to provide aquatic habitat.
- 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: (i) riparian planting zone; (ii) upland planting zone; (iii) shoreline planting zone and (iv) life staking planting zone. Details relating to construction, planting and monitoring requirements for the watercourse realignment corridor are contained within the "Natural Channel Design Report" prepared by Stantec Consulting Ltd. (dated October 2021).
- 6. Reforestation Areas There are two main reforestation areas:
- 6.1. The Woodland Compensation Area (Off-site) to be no less than 4.3 ha in area. Plantings in this area are set out in Table 1 on this drawing. Planting for this Area (Off-site) will commence in the appropriate planting season following licence approval.
- 6.2. The on-site Woodland Compensation Area includes the areas identified as the Deciduous Woodland, Treed Deciduous Swamp and Swamp Thicket/Marsh Meadow, to be no less than 4.0 ha in total area. Plantings in these areas are set out in Tables 1 to 3 on this drawing respectively. In the Deciduous Woodlands (on-site), additional conifer species will be added to the species mix to provide additional screening. 7. A woodland and wildlife habitat compensation plan shall be prepared in consultation with

regulatory authorities in accordance with Note E.5.a on drawing 4 of 6.

- C. Slopes and Grading 1. Progressive rehabilitation will utilize a variety of rehabilitation techniques including:
- a. backfilling extraction faces and quarry floors; or Leaving extraction faces vertical
- 2. Excess soil, as defined by Ontario Regulation 406/19 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. tracking and testing standards required by Ontario Regulation 406/19 or the applicable MECP standards at the time.
- 4. The maximum total amount of excess soil that may be imported to this site for rehabilitation purposes is 2,400,000 m³.
- 5. The licensee shall ensure that the acceptance and reuse of excess soil imported for rehabilitation purposes is compliant with Part 1: Rules for Soil Management 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.
- 6. The final rehabilitated landforms established using the rehabilitation techniques will consist of a lake, shoreline wetlands, riparian corridor, woodlands, gradually sloping grades, 2:1 and 3:1 side slopes, and vertical faces as shown on the plan view.

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 (Creeping Red Fescue, Kentucky Bluegrass, Perennial Ryegrass and White Clover) or equivalent. 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 Beaverdams Creek to support fish habitat and downstream wetlands.
- 4. The licensee shall operate in accordance with the conditions of the MECP, PTTW and ECA for the ongoing dewatering of the site.

F. Trigger Mechanism and Contingency Plan

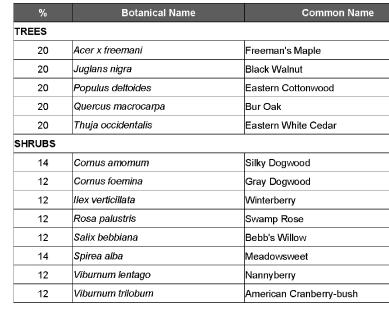
1. During progressive rehabilitation, until surrendering the licence, the licensee is required to operate in accordance with the Trigger Mechanism and Contingency Plan, included in the Upper's Quarry Level 2 Water Study Report prepared by WSP, dated October 2021, as may be amended from time to time with approval from MNDMNRF.

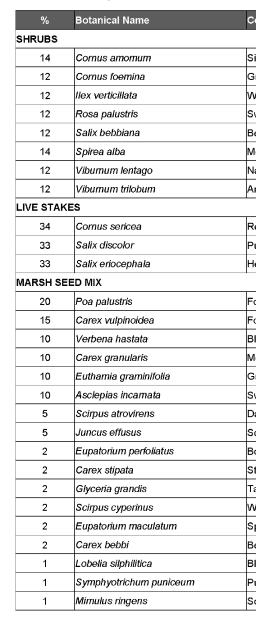
FINAL REHABILITATION

- 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.

Botanical Name TREES Acer saccharum 25 Carya ovata 15 Fagus grandifolia 15 Ostrya virginiana 20 Prunus serotina 5 Quercus rubra 15 Tilia Americana SHRUBS 15 Amelanchier arborea 20 Carpinus caroliniana 15 Hamamelis virginiana 15 Prunus virginiana 20 Rhus typhina 20 Comus racemosa 15 Rubus odoratus GROUND COVER 20 Schizachyrium scoparium 15 Elymus histrix 15 Rudbeckia hirta 15 Carex granularis 8 Solidago canadensis 8 Oenothera biennis Asclepias syriaca 5 Clematis virginiana Monarda fistulosa Anemone canadensis Euthamia graminifolia Symphyotrichum cordifolium Aster novae-angliae Table 2: Treed Deciduous Swamp Planting List

Table 1: Deciduous Woodland Planting List



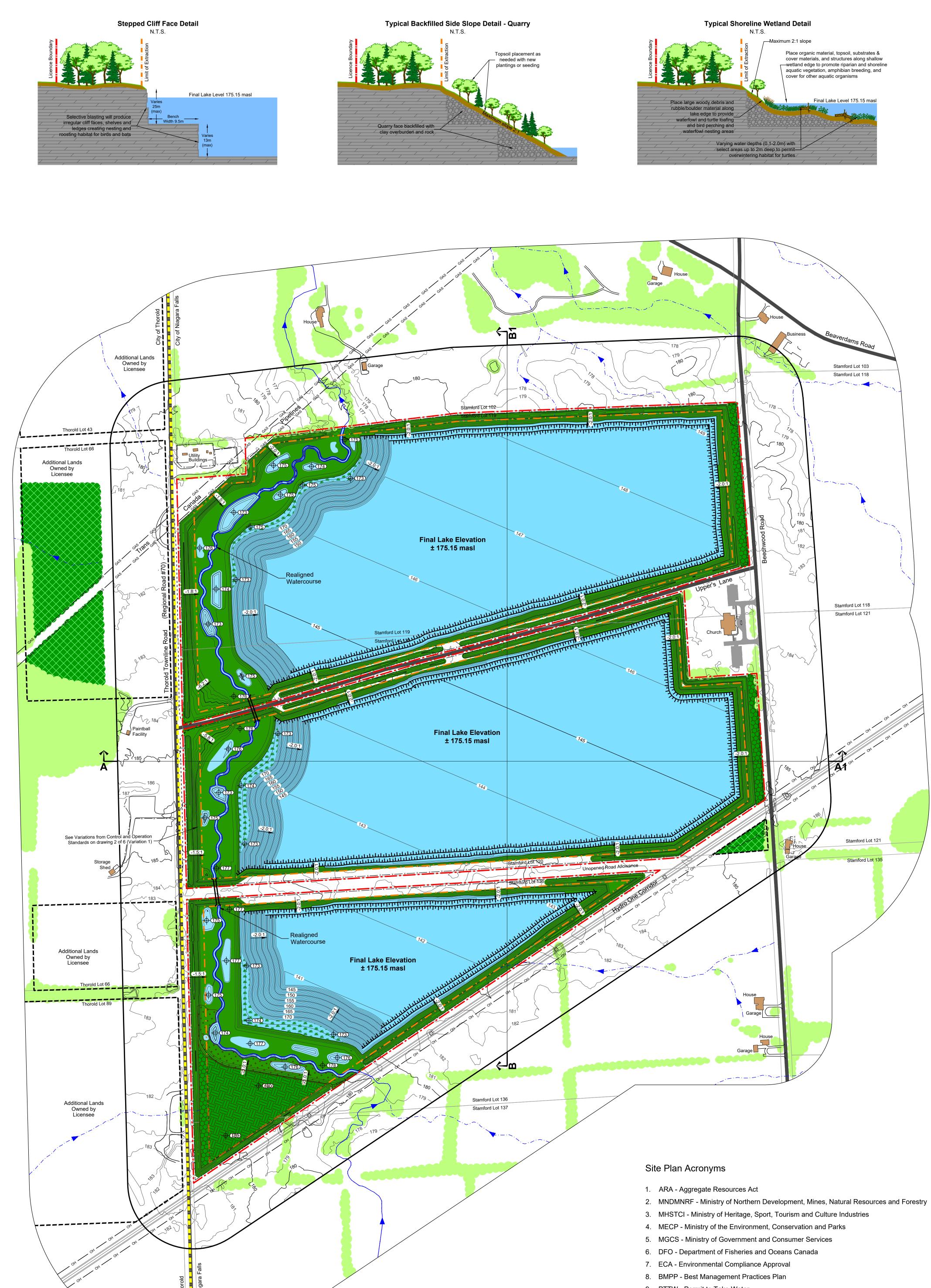




% Common Name SHRUBS 14 Cornus amomum 12 Cornus foemina 12 Ilex verticillata 12 Rosa palustris 12 Salix bebbiana 14 Spirea alba

Table 5: Riparian Planting List





Common Name Sugar Maple Shagbark Hickory American Beech Ironwood Black Cherry Red Oak Basswood Juneberry Blue-beech Witch Hazel Chokecherry Staghorn Sumac Grey Dogwood Purple-flowering Raspberry Little Bluestern Bottlebrush grass Black Eyed Susan Meadow Sedge Canada Goldenrod Evening Primrose Common Milkweed Virgin's Bower Wild Bergamot Canada Anemone

Grass Leaved Goldenrod

Heart-leaved Aster

New England Aster Freeman's Maple Eastern Cottonwood Bur Oak Eastern White Cedar Silky Dogwood Gray Dogwood Winterberry Swamp Rose Bebb's Willow Meadowsweet Vannyberry American Cranberry-bush Table 3: Swamp Thicket / Marsh Meadow Planting List Common Name

> Silky Dogwood Gray Dogwood Winterberry Swamp Rose Bebb's Willow Meadowsweet Nannyberry American Cranberry-bush Red Osier Dogwood Pussy Willow Heartleaf Willow Fowl Bluegrass Fox Sedge Blue Vervain Meadow Sedge Grass Leaved Goldenrod Swamp Milkweed Dark Green Bulrush Soft Rush Boneset Stalk Grain Sedge Tall Manna Grass Woolgrass Spotted Joe Pye Weed Bebb's Sedge Blue Lobelia Purple Stemmed Aster Square Stemmed Monkey Flower

Common Name Water-plantain Swamp Milkweed Wild Calla Tussock Sedge Fox Sedge Turtlehead Blue Flag Iris Little Duckweed Water Smartweed Broad-leaved Arrowhead Wool-grass

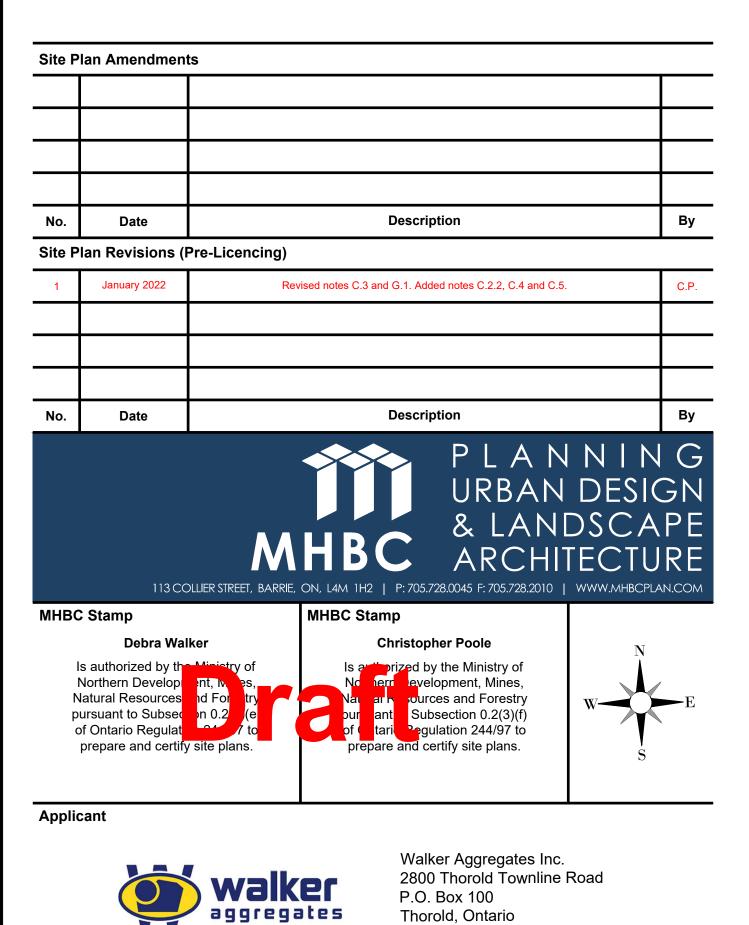


- 9. PTTW Permit to Take Water 10. MASL - Metres above sea level
- 11. ROW Right of way
- 12. HMA Hot mix asphalt

Legal Description							
Part of Lots 119, 120, 136 & 137 City of Niagara Falls (Geographic Township of Stamford) Regional Municipality of Niagara							
Legend							
··/	Licence Boundary		120m Offset From Licence Boundary				
	Limit of Extraction		Parcel Fabric				
	Additional Lands Owned by Licensee	149 150 151	Contours with Elevation Metres above sea level (MASL)				
	Municipal Boundary		Public Road				
	Watercourse Direction of flow indicated by arrows	GAS GAS	Trans Canada Pipeline Easement				
	Surface Drainage Feature Direction of flow indicated by arrows	он он	Hydro One Easement				
\sim	Watercourse - Realigned (Stantec, 2020)	THALL	Extraction Face (Below water)				
	Waterbody		Entrance / Exit				
**************************************	Shoreline Wetland	X	Gate				
	Terrestrial Habitat		Culvert				
	Deciduous Woodland	× *	Fence 1.2m post & wire farm fence unless otherwise noted				
	Treed Deciduous Swamp		Building/Structure				
* * * *	Swamp Thicket and Marsh Meadow	\\$ ⊕ () () () () () () () () () ()	Proposed Floor Elevation Metres above sea level (MASL)				
	Woodland Compensation Area (Off-site)	20:1	Proposed Final Grade				
	Wooded Area		Cross Sections				

Legend - Cross Sections

Licence Boundary
Limit of Extraction
Existing Grade - Undisturbed
Existing Grade - Removed / Altered
(See note A.2 on this drawing)
Quarry Floor / Face
Backfilled
Lake or Pond



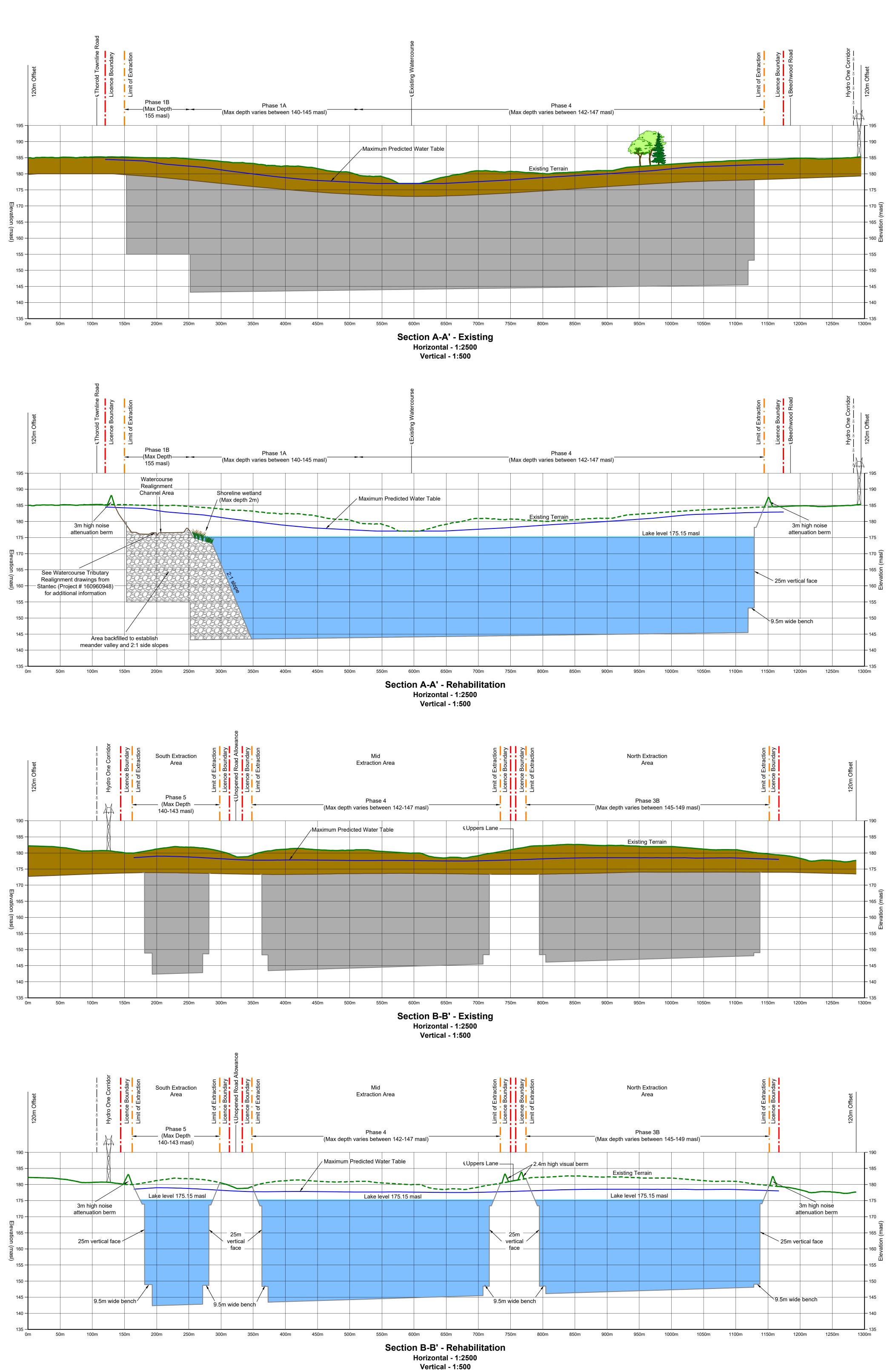
Upper's Quarry

Project

Drawing No.	5 of 6			
File Name Reha	bilitatio	n Pla	in	
Meters	Checked By	D.W.		9011 V
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Plan Scale: 1:3000 (Arch E)	Date	Oct	ober 202	:1
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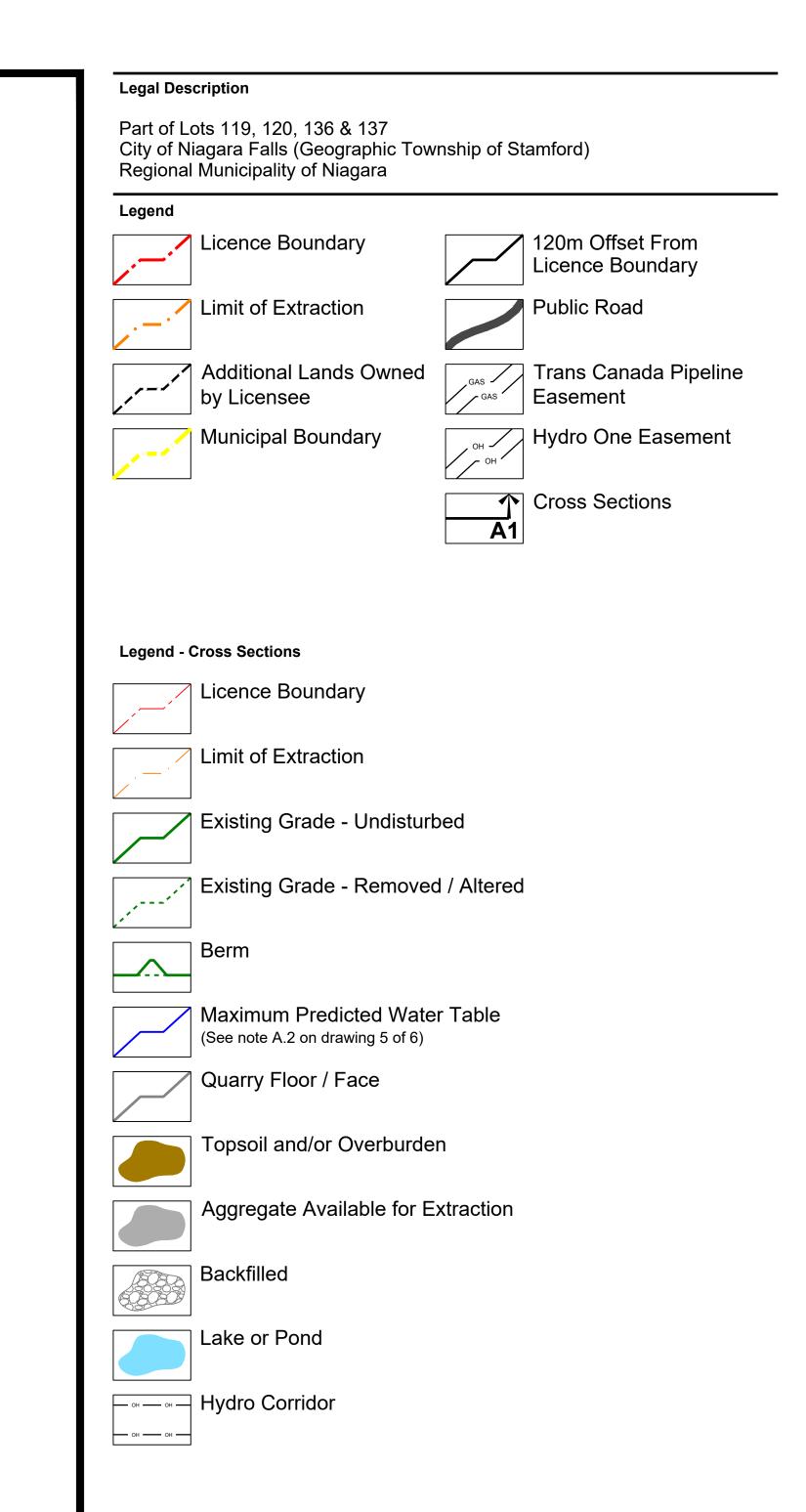
L2V 3Y8





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

120 240 Meters



Site P	Plan Amendments	5					
No.	Date			Descrip	tion		Ву
Site P	Plan Revisions (P	re-Licencing)					
1	January 2022	Updated site pl	an per feedback	from MNDMN	IRF and completed min	nor housekeeping	C.P.
No.	Date			Descrip	tion		Ву
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					URBA	N DESI	GN
						NDSCA	
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MHBO	C Stamp		MHBC St	amp			
	Debra Walk			Christoph	er Poole	Ν	
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р	oursuant to Subsec	nd Forentry on 0.2 (e	bur	ant Subs	es and Forestry section 0.2(3)(f)	W W	E
C	of Ontario Regulat prepare and certify	site plans.			ation 244/97 to rtify site plans.	S	
Appli	cant						
••							
					er Aggregates Thorold Townli		
		aggrega	ates	-	Box 100 old, Ontario		
				L2V 3			
Projec	ct						
-		Upp	oer's	Qu	arry		
MNDN	INRF Licence Re	ference No.		Applican	t's Signature		
Plan S	Scale: (Arch E)			Date	Octo	ober 2021	
_	Horizonta	al 1:2500		Drawn By		File No.	
	Vertical	1:500		Checked		98 1	1V
File N	ame						

Cross Sections 6 of 6

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Drawing No.