

Flyrock Assessment by Golder Associates Inc., dated December 16, 2021 and as amended

- The Licensee shall undertake an assessment of proposed blast design(s) for flyrock potential using an industry standard flyrock model which must be conducted:
 - Prior to commencement of blasting.
 - Following required future modifications of the blast design.
- The Licensee shall ensure that the orientation of each blast is to direct flyrock away from residences.
- The Licensee shall provide training of drilling and blasting to crew(s) to ensure they understand the PCQ's approach to flyrock prevention.
- The Licensee shall provide quality control of drilling and blasting operation by:
 - Prior to loading any shot, blast designs shall be reviewed and approved by an engineer with experience in quarries and blasting.
 - Drilling accuracy and deviation will be monitored. The use of face mapping tools (e.g., laser contouring) is required to ensure that face burdens are controlled.
 - The use of high-speed video is required to enable estimation of the fragment launch velocity which will be used in the refinement of flyrock models (i.e., bench top and bench face).
 - Detailed drill logging program will be designed. Anomalies indicating potential problematic zones will be recorded and communicated to the blasting supervisor so that measures can be taken to prevent the potential impact of those zones.
 - The blast site will be reviewed to ensure compliance with the detailed drill program design.
 - All blasts will be videoed and reviewed to ensure blast performance quality.
 - Periodic third-party audits must be carried out twice per year, to complement continuous quality control.

The following Table lists the Sensitive Receptor Reference (SR) Number (as shown in Figure 2 of the Blasting (Vibration) Impact Assessment, the corresponding municipal address and its distance to the quarry boundary.

SR#	MUNICIPAL ADDRESS	SR distance (metres) to quarry boundary	SR#	ADDRESS	(m)
1	2199 BABION ROAD	1070	30	1305 Hwy #3 (MAIN ST. E.)	227
2	1540 BABION ROAD	638	31	1331 Hwy #3 (MAIN ST. E.)	67
3	991 Hwy #3 (MAIN ST. E.)	640	36	1838 Hwy #3 (MAIN ST. E.)	154
4	1413 LORRAINE ROAD	580	37	NO ASSOCIATED SR	-
5	1386 LORRAINE ROAD	639	38	1054 WEAVER ROAD	506
6	1085 LORRAINE ROAD	795	39	1080 WEAVER ROAD	460
7	1051 LORRAINE ROAD	838	40	1094 WEAVER ROAD	430
8	896 KILLALY STREET EAST	1145	41	1110 WEAVER ROAD	400
9	1007 KILLALY STREET EAST	1031	42	1142 WEAVER ROAD	339
10	1014 KILLALY STREET EAST	892	43	1152 WEAVER ROAD	318
11	1096 KILLALY STREET EAST	805	44	1162 WEAVER ROAD	295
12	1133 KILLALY STREET EAST	833	45	1262 MILLER ROAD	355
13	1193 KILLALY STREET EAST	775	46	1266 Hwy #3 - DWELLING	91
14	1233 KILLALY STREET EAST	790	47	1359 MILLER ROAD	28
15	1246 KILLALY STREET EAST	679	48	1498 MILLER ROAD	8
16	1268 KILLALY STREET EAST	646	49	1580 MILLER ROAD	172
17	1288 KILLALY STREET EAST	666	50	1591 MILLER ROAD	201
18	1324 KILLALY STREET EAST	628	51	1630 MILLER ROAD	270
19	1374 - 1458 KILLALY STREET	587	52	1682 MILLER ROAD	355
20	1030 WEAVER ROAD	550	53	1732 MILLER ROAD	361
21	1470 KILLALY STREET EAST	585	54	1778 MILLER ROAD	416
22	974 WEAVER ROAD	718	55	1826 MILLER ROAD	348
23	1627 KILLALY STREET EAST	607	56	1864 MILLER ROAD	297
24	1640 KILLALY STREET EAST	498	57	1903 MILLER ROAD	471
25	1704 KILLALY STREET EAST	473	58	2024 MILLER ROAD	372
26	1728 KILLALY STREET EAST	464	59	2084 MILLER ROAD	402
27	1739 KILLALY STREET EAST	531	60	2168 MILLER ROAD	488
28	1740 / 1750 KILLALY ST. EAST	470	61	2187 MILLER ROAD	597
29	1516 BABION ROAD	666	62	1246 2nd CONCESSION RD.	552
	CONTINUED		63	1740 2nd CONCESSION RD.	25

Hydrological Study by Golder Associates Inc., dated October 2020 and as amended

- All monitoring requirements with respect to the quarry discharges and the receiving system will be regulated by the Industrial Sewage Works Environment Compliance Approval, (MECP) to be amended prior to the dewatering of Pit 3 Extension.
- The increased runoff under operational and rehabilitated conditions will be directed to the east and west branches of the Wignell drain, increasing the annual flows within these water features.
- Significant Wetland Area - Water Level Monitoring and Mitigation**
 - The Wignell drain realignment design shall maintain connectivity along the south side of Second Concession Road, being the north side of the Significant Wetland Area fence (ELC: SWD3-2) during flow events, by omitting an elevated bank between the drain and the wetland.
 - The abandoned portion of the drain which bisects the Significant Wetland Area, (through SWD3-2) will remain in place to facilitate mitigation if required. This mitigation will be the acceptance of surface water flows from the new drain alignment (via the proposed berm and Hickenbottom riser) whenever monitoring in the woodlot shows that the soil is becoming too dry. Water that is allowed to flow into this abandoned portion of the drain, will be allowed to infiltrate into the surrounding overburden in the same way as it does under existing conditions.
 - A berm equipped with a Hickenbottom Riser and outlet pipe with a removable cap, will be placed in the upstream end of the abandoned drain, as shown on Sheet 7 of 10 as Detail No. 1 and 2, which will allow water to be diverted from the drain, into the woodlot when required.
- Existing surface water outlets (shown on Sheet 2 of 10) from the Significant Wetland Area (SWD3-2) to the Wignell Drain to (Pit 3 - Licence 4444) quarry, will initially remain in place to allow excess water to drain, as it does under existing conditions. Monitoring of water levels in the Significant Wetland Area will inform future decisions regarding the need to continue draining water to these receivers.
- The drive point piezometers and staff gauges installed in the Significant Wetland Area, shall facilitate establishing the range of normal water levels prior to the drain realignment and quarry expansion. Collection of baseline water level data will continue until the drain realignment or quarry expansion are constructed.
- Once the Licence is issued, the Licensee is required to obtain an Environmental Compliance Approval (ECA) amendment application from Ministry of Environment, Conservation and Parks (MECP), for the dewatering. The ECA will require annual reporting of the water levels within the Significant Wetland Area (SWD3-2) to capture baseline conditions. As such, monthly low water level triggers will be identified as the 5th percentile water level observed on each of the water level monitors during baseline monitoring. The monthly trigger levels will be updated after each year of monitoring until the drain is realigned. At the end of each calendar year of baseline water level monitoring, the range of observed water levels will be documented and submitted to MNRF.
- An exceedance of the trigger will be deemed to have occurred when the average monthly water level is below the trigger level on any of the water level monitors.
- In the event that a trigger is exceeded, mitigation (see Notes 9 and 10) will be initiated within two weeks and an investigation will be initiated to identify potential causes of the trigger exceedance, including dry meteorological conditions, unanticipated effects of the quarry operation, or unanticipated effects of the drain re-alignment which may include drier than expected conditions resulting from groundwater drawdown under the woodlot, or diversion of runoff from the upstream drainage area around the woodlot.
- Initially, passive mitigation will include opening the outlet pipe under the diversion berm (see Note 3 above) and allowing water to flow from the drain to the woodlot. In the event of low water levels in the drain during a trigger exceedance, the water level in the drain may temporarily be increased by sandbagging up to the lowest 25% of the culvert opening at the next driveway culvert located approximately 200 m east (downstream) of the diversion berm.
- If the investigation shows that quarry or the realigned part of the Wignell Drain between Carl Road and the northeast corner of Phase 2 of the proposed quarry expansion activity was a contributing cause of the low water levels in the wetland, and sufficient water is not available in the drain to offset the low water levels, active mitigation will be initiated by delivering additional water to the abandoned part of the drain in the woodlot, either by pumping or trucking water from the quarry water management system.

11. Mitigation will continue until; the water levels return to the normal range unless the investigation identifies a cause other than the quarry or the realigned part of the Wignell Drain between Carl Road and the northeast corner of Phase 2 of the proposed quarry expansion that is primarily responsible for the trigger exceedance. If another cause is identified, the Licensee shall work with the MND/MNRF to establish a schedule for discontinuing active mitigation to minimize impacts on the wetland feature. The intent of the recommended mitigation scheme is to quantify typical water levels in the wetland prior to the Wignell Drain re-alignment or quarry expansion, provide timely mitigation to the woodlot in the event of sustained dry conditions, provide an opportunity to investigate the cause of the observed dry conditions and provide a mechanism for the Licensee to gradually discontinue mitigation if the cause of the dry conditions is found not to be quarry related.

12. The Licensee shall review the drain alignment plans once they are approved and adjust the swamp water level monitoring and mitigation program as required to react to any changes to the plans prior to finalization.

Hydrogeological Study by Golder Associates Inc., dated October 2020 and as amended

- The following existing on-site monitoring plans shall be monitored with groundwater levels taken monthly and water quality samples taken every five years. Groundwater quality parameters to be tested for include:

General Chemistry: pH, EC, TDS, Hardness
Nutrients/Organic Indicators: Total ammonia, Nitrate, Nitrite, DOC, Orthophosphate
Major and Minor Ions: Alkalinity, calcium, chloride, magnesium, potassium, sodium, sulphate, anion sum, cation sum.

Dissolved Metals:

- aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, phosphorus, selenium, silicon, silver, strontium, thallium, titanium, uranium, vanadium, zinc.

Monitoring Well Number			
MW17-1S,	MW17-6S,	MW17-1D,	MW17-8D,
MW17-2S,	MW17-7S,	MW17-2D,	MW17-7D,
MW17-3S,	MW17-8S,	MW17-3D,	MW17-8D,
MW17-4S,	MW17-9S,	MW17-4D,	MW17-9D,
MW17-5S,	MW17-10S,	MW17-5D,	MW17-10D

- Three additional monitoring wells are to be installed prior to quarrying and are shown on the Site Plans and include:
 - on the Second Concession Road frontage mid-way along the northern limit of extraction,
 - mid-way along the eastern property boundary and
 - at the northern extent of the Miller Road frontage.These wells will be also monitored at the same frequency as the existing wells.

3. The results of the Groundwater Quality Monitoring will be used to evaluate potential changes in water quality as the proposed quarry expands. The groundwater level monitoring will be used to assess the groundwater level drawdown associated with quarry dewatering as the quarry expands. The monitoring program will be used to evaluate potential impacts on surrounding wells and used as part of the hydrogeological and ecological disciplines to confirm no unanticipated effects on the natural environment.

4. In order to implement appropriate response actions in a timely manner, the Licensee will retain qualified personnel in the areas of hydrogeology and will have water well contractors and a plumbing contractor on retainer in the event that the need for these services arises.

5. The monitoring program will be discontinued once the quarrying is completed and the quarry will be allowed to flood through natural surface water and groundwater inflows, and the groundwater will recover to static conditions.

Private Well Complaints Response Program

The following description provides the decision process to be followed when a well interference complaint is received.

- The well will be inspected by a Hydrogeologist and/or a Licensed Well Contractor to initially evaluate the complaint. An analysis and impact assessment will then be conducted by a Hydrogeologist to evaluate potential impacts for groundwater level drawdown to affect the water supply of the well. An assessment of the well system performance will then be carried out by the Hydrogeologist and Contractor.
- If it is determined by a Hydrogeologist that there is a significant potential for interruption of the water supply of the well or the water supply of the well has been interrupted, then the water supply restoration program will be initiated. If the initial measures are not successful, then mitigation measures will be implemented in the interim until a successful response is achieved. This could involve the implementation of additional contingency measures until a successful result is achieved.

3. If there is no significant potential for the interruption of water supply, then no restoration action will be undertaken, and the temporary water supply will be discontinued. The actions and responses undertaken, as determined by a Hydrogeologist, will be documented for the annual report, and reported to the agencies as required.

Potential Mitigation Options

There are several mitigation strategies that could be implemented to affect the supply of surrounding water wells, to counteract the effect of quarry-related groundwater level drawdown, if required, based on the results of the monitoring and complaints response program.

- Well Deepening:** This would be effective, for example, for shallow bedrock wells that no longer have a sufficient water column due to quarry-related groundwater level drawdown. The results of the hydrogeological program indicate that well deepening is feasible, since water supply is obtained from duplicate private water wells and municipal wells.

2. **Well Replacement:** This measure could be introduced for wells where well deepening was not sufficient and could also be positioned further from the quarry.

3. **Additional Wells:** Additional wells could be installed and connected by plumbing into the residence by piping as such that there is a common feed of water from multiple wells.

4. **Trickle Wells:** This would involve the pumping of the well into a storage system such as a subsurface cistern.

5. **Grouting:** The bedrock along the quarry wall could be grouted to seal the fractures and remove the hydraulic connection to adjacent wells.

6. **Low Permeability Slopes:** The quarry walls could be sloped with low permeability clayey materials to line the fractures on the quarry wall.

7. **Recharge Wells:** Recharge wells could be installed to maintain groundwater levels in areas affected by groundwater level drawdown.

The requirement for any of these mitigation measures would be determined based on the results of the groundwater monitoring program. The results of the monitoring and response program will be incorporated into a report that will be submitted to the MECP on an annual basis as part of the future requirements for a site-wide Permit to Take Water (PTTW)

Permit to Take Water

1. Any future Permit to Take Water (PTTW) application by the Licensee to MECP and annual monitoring reports, shall be subject to peer review by the Regional Municipality of Niagara.

Natural Environment Report, Golder Associates Inc. dated October 2020 and as amended

1. **Setbacks:** All extraction setbacks for Phases 1B, 2 and 3 shall be clearly demarked under the direction of a qualified Ecologist prior to the start of operations, where they are contiguous to environmental features and specifically those identified as CVR4, FOD7, CUM1-1, FOD7-2, SWD3-2.

2. **Bird Breeding Habitat:** The Licensee shall avoid vegetation removal including agricultural fields during the active breeding season for birds between April 15 and August 15 unless construction disturbance is preceded by a nesting survey. If nests are found, a buffer will be installed around the nest and not removed until young have fledged the nest.

Prior to removal of vegetation in agricultural fields, the Licensee shall confirm that there is no suitable habitat for bobolink, eastern meadowlark or grasshopper sparrow present. If present, permitting under the ESA may be required to remove the habitat.

All vegetation communities with the potential to provide nesting sites to migratory birds will require nesting surveys if they are removed between April 15 and August 15. This will include the FOD7-2 in extraction area 2, the CUM1-1 in extraction area 3 north of the FOD7-2, and the CUM1-1 in extraction area 1A around the Humberstone Speedway. If areas of the open agricultural lands have transitioned into fallow post-agricultural lands, nesting surveys will also be required in those areas if clearing is to take place during the nesting season.

3. **Fish Habitat:** The ponds within the former Humberstone Speedway lands may contain fish, and if present, they shall be removed prior to dewatering and/or destruction of the ponds. This will require a MNRF permit to collect fish and it shall be obtained prior to relocation to avoid contravention of the federal Fisheries Act. Any native fish present are to be relocated to suitable nearby habitat and non-native fish are to be euthanized.

4. **Sediment/Erosion Control:** Sediment and erosion control measures shall be implemented prior to and during construction, and be implemented throughout the entire site, specifically in areas adjacent to the deciduous swamp and the East Wignell Drain. This may include the use of silt fencing, check dams, straw bales, rip-rap and/or other techniques when and where as required.

5. **Noise and Dust Mitigation:** Appropriate noise and dust mitigation measures shall be implemented during both site preparation and during the extraction operation.

6. **Wetland Vegetation Monitoring Program:** A 'Wetland Vegetation Monitoring Program' shall be implemented to monitor the deciduous swamp to accurately monitor any changes in the wetland community over time and to measure the success of management actions. These long-term monitoring plots and/or monitoring transects shall be established to include a count of the number of stems and percent cover for all plant species present. Baseline monitoring shall be conducted in the year prior to the commencement of extraction of Phase 1B or 2, whichever occurs first. Monitoring shall be conducted annually at a similar time of year (i.e., late July) for the duration of extraction of Phases 1B, 2 and 3.

For all plants identified as part of Wetland Vegetation Monitoring Program, they shall be categorized by the wetness index based on the Floristic Quality Assessment System for Southern Ontario.

The surface water monitoring and groundwater monitoring results will aid in demonstrating any potential impacts to the wetland function.

Annually, the results of the Wetland Vegetation Monitoring Program will be submitted to MNRF prior to December 31 and available to the Region of Niagara, NPCA and City of Port Colborne upon request.

The monitoring program will also include annual breeding bird surveys and anuran call count surveys within the deciduous swamp following the same methods used for the NEL1/2 baseline studies. The purpose of the wildlife monitoring is to document whether the proposed extraction activities negatively impact species diversity and abundance. Monitoring should be conducted for the duration of extraction Phases 1B, 2 and 3.

Following rehabilitation, anuran call count surveys will be completed within the wetland habitat around the periphery of the extraction area to evaluate the success of these features as breeding habitat for amphibian. Monitoring will be conducted for a period of three years. Following rehabilitation, the wetland habitat will be evaluated for suitability as snapping turtle foraging and overwintering habitat. Because it cannot be determined how long it may take for snapping turtles to colonize the habitat, the evaluation will focus on the suitability of the habitat rather than the presence or absence of snapping turtles. However, any turtles observed will be documented.

7. Proposed Vegetation:

i) Wetland and aquatic plants that shall be planted in the nearshore or shoreline areas will include shrubs such as red-osier dogwood (*Cornus sericea*) and slender willow (*Salix petiolaris*), and herbaceous plants such as water plantain (*Alisma plantago-aqs* species listed above) will be planted in water ±0.15 metres deep and extend ±5 metres from the shore and be interspersed with cover structures (e.g., boulders and root wads) in the shallow shoreline wetland areas. Organic material and topsoil will be added to the shoreline areas to promote shoreline vegetation. Basking logs, nesting platforms and boxes will be created for turtle, waterfowl and swallows respectively. This habitat will be designed to be suitable as snapping turtle aquatic habitat and bullfrog breeding habitat.

ii) Upland areas will be seeded with a mix of grasses and legumes consisting of native, non-invasive species. The removal of existing habitat for Monarch can be offset by incorporating common milkweed where appropriate. It is recommended that common milkweed be planted in upland areas to provide host plants for monarch caterpillars. Where terrestrial plantings are included, they shall include lake sedge (*Carex lacustris*), swamp milkweed (*Asclepias incarnata*), softstem bulrush (*Schoenoplectus tabernaemontani*), and common cattail (*Typha* spp.). Shallow wetland habitats will be created through construction of submerged benches, approximately 0.25 to 0.75 metres deep. Shallow emergent marsh vegetation (i.e., herbaceous side slopes, they will include a mixture of coniferous and deciduous tree species to promote species diversity and provide a variety of species to compensate for any substrate deficiencies. The species shall include white pine, sugar maple, red oak, trembling aspen, and white birch, with a secondary focus on species such as choke cherry (*Prunus virginiana*), alternate-leaved dogwood (*Cornus alternifolia*), highbush cranberry (*Viburnum opulus*), nannyberry (*Viburnum lentago*) and serviceberry (*Ambelanchier* spp.). Ash (*Fraxinus* spp.) species shall not be sourced due to the invasion of emerald ash borer.

iii) The segment of Carl Road that bisects the deciduous swamp is to be rehabilitated following the decommissioning of the road. Excavations in three or four areas along the length of the road shall be created to improve surface water drainage. Plantings along this segment of Carl Road shall include the dominant tree and shrub species found in the deciduous swamp including silver maple, pin oak, swamp white oak, bur oak, red maple, and spicewood. Invasive shrub species including multiflora rose, common buckthorn, and Tartarian honeysuckle have become established in this area and prevent the successful establishment of the native plantings. These invasive shrubs shall be removed prior to the planting of Carl Road.

iv) The setback area along Second Concession abutting the Blanding's turtle compensation habitat and east of the deciduous swamp (Licence 4444) shall be supplemented with additional plantings to enhance connectivity and wildlife movement opportunities between the deciduous swamp and the hedgerow located east of the site woodland located northeast of the site across 2ndnd Concession Road. This area currently consists of a cultural meadow. The establishment of a wooded area will create a corridor linking the north end of the deciduous swamp with the forested areas offsite, including the significant woodland located between Carl Road and Babion Road. These additional plantings will also enhance ecological connectivity and facilitate wildlife movement between these features. Native tree and shrub species plantings shall be selected based on their suitability for the soils and moisture regime and shall include: red oak, trembling aspen, eastern white cedar, red maple, basswood, bur oak, white pine, serviceberry species, gray dogwood (*Cornus racemosa*).

v) The area north of the existing quarry (Pit 3) and west of the northern end of the deciduous swamp is to be rehabilitated to enhance connectivity and wildlife movement between the deciduous swamp and the significant woodland located north of 2ndnd Concession Road between Carl Road and Babion Road. These two significant woodlands are separated by 2ndnd Concession Road and distance of approximately 70 metres. The area recommended for rehabilitation consists of a berm vegetated with terrestrial grasses and forbs and a sparsely vegetated area north of Pit 3.

vi) All plantings included in the rehabilitation plan will be locally native, non-invasive species that create habitat in the short term and promote natural succession processes. The sourcing of plantings shall consider the regionally adapted genetics of the species. Plantings from local sources are likely to be well adapted to the local climate and growing conditions and have a higher likelihood of successful establishment. Therefore, plantings will be procured from local sources to the extent possible.

vii) All berms and rehabilitation side slopes shall be vegetated with a native, non-invasive seed mixture capable of:

- Rapid germination and growth,
- Controlling erosion,
- Maintaining or enhancing soil fertility.

The seeding shall be established in a timely manner and if necessary, facilitated by the application of fertilizer, water and/or additional seeding.

8. Wignell Drain:

- Prior to undertaking operational activities that have the potential to impact fish habitat in the Wignell Drain, including drain realignment and stripping/ excavation west of the drain within approximately 100 m, the appropriate agency/agencies shall be contacted, and the required authorizations will be obtained. An ecologist will be retained to determine the appropriate course of action at that time.
- Prior to any operational activities occurring near the East Wignell Drain, Department of Fisheries and Oceans (DFO) authorization must be obtained and provided to MNRF.

9. Blanding's turtle Habitat:

- To provide compensation habitat for Blanding's turtle, the Licensee shall create a dedicated / enhanced 0.6 Ha habitat located between Second Concession Road and Phase 3-X. Supplementary compensation habitat will be created within the former Carl Road right-of-way where it traverses the Silver Maple Mineral Deciduous Swamp (SWD3-2).
- The design of the habitat must be approved by the Ministry of Environment, Conservation and Parks (MECP) prior to the removal of the existing Category 2 habitat (i.e., three man-made ponds associated with the Humberstone Speedway lands).
- The compensation habitat shall not be designed as an on-line feature of the realigned Wignell Drain.

iv. Due to the potential for turtles to overwinter in the Humberstone Speedway ponds, removal of Category 2 habitat (aquatic habitat) will occur during the active season when turtles can be captured and relocated outside of the footprint.

v. A turtle relocation program will be implemented prior to removal of existing Category 2 habitat. Any Blanding's turtle individuals captured will be relocated to the proposed on-site suitable habitat immediately by qualified individuals in accordance with the Ontario SAR Handling Manual by ESA Authorization Holders.

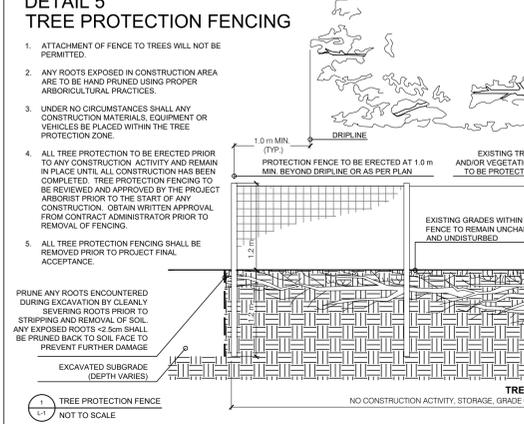
vi. A worker awareness program will be implemented for all personnel traveling or working on the site to mitigate harm to individuals.

10. Any lighting necessary to support quarry operations is to be directed away from the deciduous swamp and any other valued natural heritage features or habitats to the extent practicable to avoid unnecessary wildlife disturbance.

Tree Preservation Plan

- All woodlands, forests and hedgerows located beyond the defined protection extraction limits shall be preserved and protected in their entirety. Tree Protection Fencing shall be installed at minimum of the drip line plus one metre, per locations and extents noted on the Site Plans.
- Tree Removal:** Trees located within FOD7-2 are recommended for removal to permit the Phase 2 extraction work of the proposed quarry expansion. The presence of Emerald Ash Borer damage, high occurrence of Ash trees, pioneer species and possible restoration plantings, within the study area as well as the relatively young age of the trees present on site contribute to a low preservation priority for the FOD7-2 feature. All removals shall be in accordance with the following notes:

1. **Tree Protection Fencing (TPF)** shall be installed to protect all trees identified for preservation. Tree Protection shall conform to City of Port Colborne standards. Upon installation of the tree protection fencing, the Contractor shall contact the Project Arborist to review and approve the fencing and its location prior to commencement of any site work. A written certification of the installed TPF will be provided to the City. The protection fencing shall remain intact throughout the duration of the quarry extraction and rehabilitation works. The fencing shall be inspected monthly and repaired as required. The fencing shall be removed in its entirety at the completion of all rehabilitation works.



PIT 3 EXTENSION

ADDITIONAL OPERATIONAL NOTES PLAN

SHEET 5 OF 10

APPLICANT
PORT COLBORNE QUARRIES INC.

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2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside of migratory bird nesting season, and more specifically, only during periods noted under the NEL Level 1/2 Recommendation Note 2.

3. The TPZ is the area around a retained tree that is to be protected by tree protection fencing. The TPZ is not to be used for any type of storage (e.g. storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.

4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to City Policies and By-Laws shall be carried out.

5. Upon completion of the tree removals, refer to General Operational Note 14. Any chipping, cutting or brush clean-up is to be completed outside the bird nesting season. If these activities are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the Migratory Birds Convention Act, 1994 and Migratory Birds Regulations. These surveys will be completed by a qualified biologist

6. Excavation adjacent to trees to be preserved must be completed with due care and attention. Excavation shall clearly sever the roots prior to stripping and removal of soil. If roots are encountered during excavation all exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree. Roots smaller than 2.5 cm (1 inch) shall be cleanly cut using a sharpened spade or bypass pruners at the limits of excavation.

Visual Impact Assessment, IBI Group dated December 2020 and as amended

1. **Berm A:** 2.0 metre-high berm shall be constructed between the Blanding's turtle habitat and Phase 3-X as per Natural Environment Report Recommendation Note 7iv).

2. **Berm B:** 2.0 metre-high berm shall be constructed along the northern portion of the eastern property boundary. It will be adjacent to the realignment of the Wignell Drain, (Phase 2-X and Phase 3-X) and built with a 2:1 slopes, as per Detail 3. The balance (Phase 2) will have 3:1 slopes.

3. **Berm C:** 2.0 metre-high berm shall be constructed along the northern portion of the 'eastern-tab' built with a 3:1 slope. (See also note 10 below)

4. **Berm D:** 4.0 metre-high berm shall be constructed along the Miller Road frontage and extending latterly for 100.0 metres along the northern and southern property limits of the 'eastern-tab' with a 4:1 slope on the external side and 2.5:1 on the internal side. Both coniferous and deciduous trees are to be planted between the berm and the Miller Road boundary fence. (Refer to Detail 2 and see also Note 10 below).

5. **Berm E:** 2.0 metre-high berm shall be constructed along the southern portion of the 'eastern-tab' built with a 3:1 slope. (See also Note 10 below)

6. **Berm F:** 2.0 metre-high berm shall be constructed along the eastern boundary of the property extending south to Main Street and built with a 3:1 slope. (See Detail 2)

7. **Berm G:** 4.0 metre-high berm shall be constructed along the Main Street frontage built with a 4:1 slope on the external side with deciduous and coniferous trees planted between the berm and boundary fence.

8. **B**