

SPILLS CONTINGENCY AND RESPONSE PROGRAM

- Liquid petroleum products (fuels, oil) in quantities greater than 500 litres or other hazardous liquid chemical associated with the operation will not be stored onsite on a permanent basis.
- Temporary fuel storage facilities will be inspected for leaks on a regular basis when operations are occurring. If operations are not occurring (for example on weekends or during an extended shutdown period), inspection of temporary fuel storage facilities remaining onsite will occur weekly.
- Spills containment materials (for example, absorbency materials and portable containers) are to be available on-site as part of the temporary fuel storage equipment.
- In the case of an accidental spill of fuel or oil, the following action is to be taken:
 - If the spill volume is approximately 5 L or more, or the spill occurs directly to a surface water feature, contact the Spills Action Centre established by MOECC (1-800-268-6060), Guelph/Eramosa Township, The Town of Milton and the five local downstream residences: (W10) 8540 Hwy 7, (W16) 5134 Hwy 7, (W17) 14321 5th Line Nassagaweya, (W18) 14297 5th Line Nassagaweya, (W19) 5036 Hwy 7.
 - Take reasonable measures to stop or control the spill (such as closing valves, collecting leakage in a container, applying the absorbency materials).
 - Arrange for an inspection of the spill site and a general assessment of the environmental impact by a Qualified Person (Qualified Person means a professional engineer or professional geoscientist) and/or the Ministry of the Environment.
 - Implement remedial measures as recommended by the Qualified Person and/or the Ministry of the Environment.
 - Prepare a written report on the incident for review by the Township, MNRF/MOE.
- Fuel storage and refueling areas will not be located adjacent to identified natural heritage or aquatic features. Mitigation measures to prevent transfer of spills to these features will be installed prior to the commencement of operations and inspected regularly by a qualified professional.

HOURS OF OPERATION

- Shipping and Loading: 6 am to 6 pm - Weekdays and 6 am to 1 pm - Saturdays.
- Extraction and Processing: 7 am to 7 pm - Weekdays and 7 am to 1 pm - Saturdays.
- Drilling: 7 am to 7 pm - Weekdays, 7 am to 1 pm - Saturdays
Blasting: 8 am to 5 pm - Weekdays.
- Closed for Operations on Sundays and Public Holidays.
- Maintenance and Rehabilitation may occur during normal weekday hours, 6 am to 7 pm, and on Saturdays from 7 am to 5 pm.

SITE PLAN OVERRIDE TABLE

THE FOLLOWING CONDITIONS ILLUSTRATED ON THIS PLAN VARY FROM THE REQUIREMENTS OF THE PROVINCIAL STANDARDS THAT APPLY TO LICENSED PITS AND QUARRIES IN ONTARIO.

OVERRIDE	STANDARD
The fence in the NW corner will not follow the licensed boundary but will follow inside the berm between the existing wetland and the berm as shown on the plan	5.1
Rehabilitation of side slopes may occur at a slope steeper than 2:1 to promote ecological diversity	5.19.2
Selected trees will not be removed within 5m of the extraction face.	5.5

Blasting - Blasting Impact Assessment by EXPLOTECH

It is recommended that the following conditions be applied for all blasting operations at the proposed James Dick Construction Hidden Quarry:

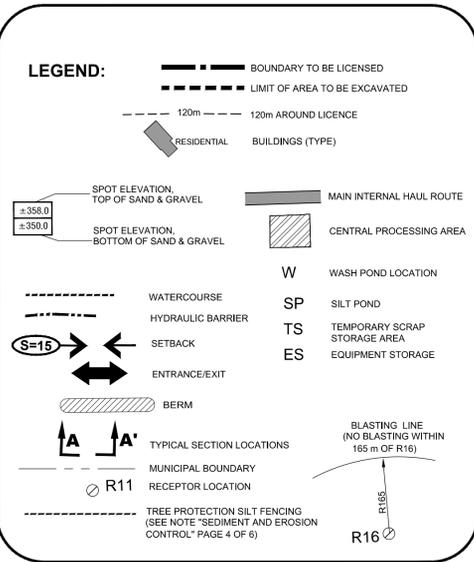
DUST - Air Quality Assessment by RWDI

- The quarry is limited to 12 hours of operation per day, from 7:00 am to 7:00 pm for site preparation, drilling, blasting, excavation, processing operations and rehabilitation activities, and 6:00 am to 6:00 pm for shipping operations.
- The maximum processing rate of 6,000 tonnes per day is not exceeded.
- Equipment specific controls will be implemented including a 25km/hr speed limit, appropriate tail pipe emission tiers, and dust suppression.
- An Environmental Compliance Approval under Section 9 of the Environmental Protection Act (EPA) will be obtained as required.
- A Best Management Practices Plan will be developed and implemented.
- The processing plant will be located approximately as shown on the site plans.
- Stripping of overburden will be limited to times when extraction, production and shipping activities are well below the estimated peak rate of 6,000 tonnes per day.

Noise Impact Study and Addendum by Aerocoustics Recommended Noise Control Measures:

- 12m and 10m high stockpiles should be maintained in certain locations around the processing plant for each phase and stage. The stockpile peaks should be located no further than 30m from the processing plant, and should be located such that, in plan, they block line-of-sight between processing plant equipment and sensitive receptors, as described in the table below:

Stockpiles Positioned To Shield Receptor IDs	Minimum Stockpile Height (m)
R1 and R15 to R18	10
R3 to R7, R11 and R19	12
- A quiet drill with a maximum sound power rating of 112dBA should be used. This corresponds to a maximum sound pressure level rating of 75dBA at 30 meters.
- Earth berms shall be constructed to the elevations shown and located as shown on the site plans.
- The processing plant area shall be established at a maximum elevation of 351m, and a haul route trench connecting the processing plant area to the Stage 1 Phase 1 extraction area should be excavated to the same 351m elevation.
- All construction equipment used in site preparation/construction must meet the sound emission standards defined in MOE publication NPC-115 and Guelph/Eramosa Bylaw 500/105. The relevant background information on non-stationary noise sources as well as publication NPC-115 is given in MOE Model Municipal Noise Control Bylaw, 1978 as well as the sound source exclusions defined in MOE publications NPC 205/232, 1995.
- An Acoustic Audit by an independent third-party contractor shall be conducted during the first year of operation of the quarry, to ensure that:
 - Noise emissions from the actual facility equipment are equal to or less than that used in the noise impact assessment.
 - Noise emissions from the rock drill meet the maximum power level specification contained in Section 4 of the AEL report.
 - The equipment is in good operating order, meeting the Township Noise Bylaw requirements.
 - The mitigation measures, including berms and barriers, outlined in the noise report are installed and in operation; and
 - The resulting noise impacts from facility operations are in compliance with NPC-205 and NPC-232 requirements.



NOTES:

- This plan depicts a schematic operations sequence for this property based upon the best information available at the time of preparation. Phases shown are schematic and may vary with demand and variations in the aggregate deposit. Phases do not represent any specific or equal time period. Phases and lifts may be operated concurrently. Excavation will occur above and below the water table.
- The lands are to be rehabilitated to an ecological after-use with the incorporation of a lake (s).
- The site will be operated in several Phases, consisting of two lifts, as shown on the Site Plan. The first lift will involve the extraction of the unconsolidated material above the water table. The second lift will involve the extraction of consolidated material above and below the water table. Due to the variability in stone and sand gradations, and with fluctuations in market demand for various aggregate products, extraction may occur simultaneously at different portions of the site, unless otherwise specified in the technical reports, i.e. noise and dust.
- Extraction operations will use loaders, drag-lines and excavators, which will feed a processing plant(s), i.e. crushing, screening and washing plants. Other equipment to be used on the site includes: trucks, tractors, portable drill, scrapers, and dozers. Equipment will be stored in the main processing area.
- Existing property limits are fenced. Prior to extraction, a survey of the boundaries of the licence will be completed and fence installation will occur along the perimeter of the site as required. A gate will be installed about 20m in front of the scale house. Fencing will follow both sides of the entrance into the quarry to the gate.
- On site permanent fuel storage will not occur in quantities greater than 500 litres.
- Processing equipment and aggregate stockpiles resulting from this operation shall proceed as close to the excavation face as possible, during the initial phase of operations. A main processing area will be developed in the south western portion of the site once a sufficient area has been cleared.
- It is anticipated that the only buildings or structures that will be constructed are a scale, scalehouse and a maintenance shop/office/ quality lab. The scale and scalehouse will be located close to the main entrance to the site, adjacent to the 6th Concession.
- Scrap will not be stored permanently onsite. Temporary scrap piles will be located in the main processing area as shown on the Site Plan.
- Onsite overburden quantities are minimal, therefore overburden and topsoil may be stored together in the stockpile locations or perimeter berms. Where there is a sufficient depth of subsoil and overburden, stripping and storage will occur separately.
- Topsoil and overburden stockpiles will be seeded with an appropriate grass legume seed mixture to prevent erosion. See typical screening berm detail on page 5).
- All vegetation planted during the operation of the site will be maintained in a healthy growing condition. Should any planted vegetation die, it will be replaced within one growing season.
- One (loped) internal haul road is shown on the plan. Internal haul roads may need to be modified during the course of operations to permit efficient access to different product stockpiles. The internal haul road will be paved from the entrance to the scale. The internal haul road will be inspected daily, or more often as required, to ensure that dust and aggregate are not tracked onto the municipal road system. Dust will be controlled through mechanical sweeping and/or treatment with water.
- Dust control will be maintained through the use of a MOECC approved dust suppressant or water as required.
- During the early stages of operation a small pond (< 0.4 ha in size) may be established on the pit/quarry floor to permit washing operations and to provide water for dust suppression. A permit to take water will be obtained from the MOECC prior to any washing operations taking place as required.
- The location of existing vegetation/natural tree screening is shown on Page 1.
- Any trees or stumps that are needed to be removed from the extraction area shall be harvested, mulched or used for rehabilitation purposes. The area to be extracted is 24.5 ha.
- The maximum tonnage to be removed from this license in any calendar year shall be 700,000 tonnes.
- The existing Service Entrances at the north end of the site on the 6th line will permit access for maintenance and operational vehicles only. Commercial traffic will be restricted to the main commercial scale entrances only.
- The commercial entrance to the site will be designed in accordance with the Township of Guelph/Eramosa Design Standards within the right of way. The design of the commercial entrance shall allow at least one full truck to be off the travelled portion of the road with the gate closed.
- Topsoil that is stripped from operational areas will be placed in screening berms around the perimeter of the site as shown on the site plans. As part of final rehabilitation the topsoil in berms will be used to achieve final contours as indicated on the site plans.
- Truck Entrance warning signs will be placed on the sixth line as required, according to the Ontario Traffic Manual, based on 80km/hr speed (6th line and 100km/hr Hwy 7) subject to MTO recommendations for Hwy 7.
- Vegetation clearing operations will not take place during the breeding bird period (May 15 - July 31) to avoid contravention of the Migratory Breeding Bird Convention Act, 1994.

Water - Hydrogeological Investigation Report by Harden Environmental

- The monitoring program for this proposed pit/quarry involves the following activities:
- measuring groundwater levels,
 - obtain water quality samples,
 - monitoring water levels in the on-site wetland and stream, and
 - stream flow measurements

Level II Natural Environment Technical Report by GWS Ecological Services

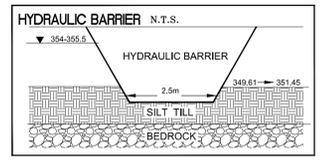
- A 30m buffer will be established from the limit of the PSW provided the identified Archaeological Feature is cleared. If this is not the case the hydraulic barrier will be installed approximately 20m from the PSW in this area in order to maintain buffer requirements around the Archaeological feature. This is shown in Figure 4-2 of the Hydrogeological Investigation prepared by Harden Environmental Services. The riparian wetland boundary and the PSW boundary were flagged by GWS staff and verified in the field by the GRCA on June 7, 2013.

TECHNICAL RECOMMENDATIONS

A hydraulic barrier shall be installed along the southern and eastern portions of the northwest wetland. The barrier will limit the outflow of groundwater downgradient of the wetland. The schematic of the hydraulic barrier is set out on the Site Plans.

A water well complaint protocol will be implemented. Details are contained in the Harden Report "Hidden Quarry Monitoring Program and Contingency Measures" dated July 28, 2016. The Monitoring Program document is located on Page 6.

- Completion of the following at onsite wells M16/17 and M18/19 post licensing including:
 - Detailed core logging which includes fracture identification;
 - A pumping test on the open hole wells to assess connectivity with other wells on site;
 - A downhole video and flow profile to identify productive fracture systems;
 - Completion of a multi-level well at M16, M18 and M19.
 - M17 to remain an open hole
 - Water quality sampling from each well to allow assessment of water quality variations with depth
 - Hydraulic conductivity testing
- M3 will be deepened and completed to an elevation of 227 masl



- In the southeastern portion of the site qualified staff will flag and/or stake the dripline of trees which mark the boundary of FOM2-2 and will also assist the surveyor in staking the setback required from the existing off-site residence (i.e. minimum of 165 m) which traverses portions of woodland units CUP3-12a, FOC2-2, FODS-7 and CUP3-12d. Elsewhere on the property the surveyor must stake the required setbacks from property boundaries.

- Prior to the initiation of tree clearing operations trees which occur immediately beyond the specified setbacks will be marked with orange spray paint by qualified staff to further ensure there are no intrusions into tree protection areas. Trees to be removed will be marked with an orange dot at chest height and a slash of the butt which extends to the ground. Existing vegetation will be retained until soil stripping is required.

- Tree protection measures will be installed as required around the limit of the extraction area after all tree clearing and grubbing is completed.

- To facilitate access to the eastern extraction area an appropriately sized culvert must be installed in the intermittent stream at the location shown in the Operations Plan. Culvert installation will occur in the summer months when there is no flow in the stream. No in-water work is to occur during the warm water fisheries timing window (April 1 - June 30).

- Topsoil and overburden will be stripped and stored separately in bermed stockpiles as illustrated on the Operations Plan. All berms will be graded to stable slopes and seeded to prevent erosion and minimize dust. See note 10.

- Dust control will be implemented in accordance with the procedures described on the Operations Plan.

- Progressive rehabilitation will be implemented as specified in the Site Plans and replanting will commence as early as possible with an emphasis on the area adjacent to the PSW and northern property line (i.e. Phase 1 on the Operations Plan). Extracted areas will be promptly restored to an ecological after-use as set out on the Progressive and Final Rehabilitation Plan.

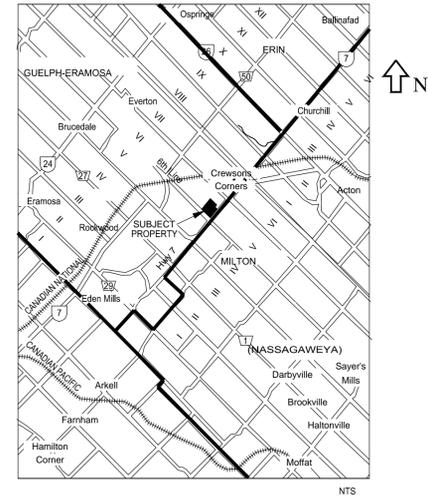
- All tree and shrub planting stock will be obtained from nurseries that utilize seed from the same genetic seed zone wherein the James Dick property is located.
- Shoreline wetlands will only be planted with native species taken from local wetlands.
- A mix of coniferous / deciduous trees (minimum spacing of 3m) will be planted along the 6th Line to increase forest density in an attempt to provide an effective natural corridor in the north and west side of the property.

HIDDEN QUARRY

PART OF LOT 1, CONCESSION 6
TOWNSHIP OF GUELPH-ERAMOSA
FORMER TOWNSHIP OF ERAMOSA
COUNTY OF WELLINGTON

Page 2 of 6
OPERATIONS PLAN

KEY MAP



THIS SITE PLAN IS PREPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENSE, CATEGORY 2 - QUARRY BELOW WATER.

THESE SITE PLANS HAVE BEEN PREPARED UNDER THE DIRECTION OF AND CERTIFIED BY A PERSON APPROVED BY THE MINISTER OF NATURAL RESOURCES (AS PER SECTION 8(4) OF THE AGGREGATE RESOURCES ACT).

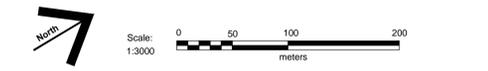
SIGNATURE: _____ DATE: _____

PREPARED FOR: **JAMES DICK CONSTRUCTION LTD**

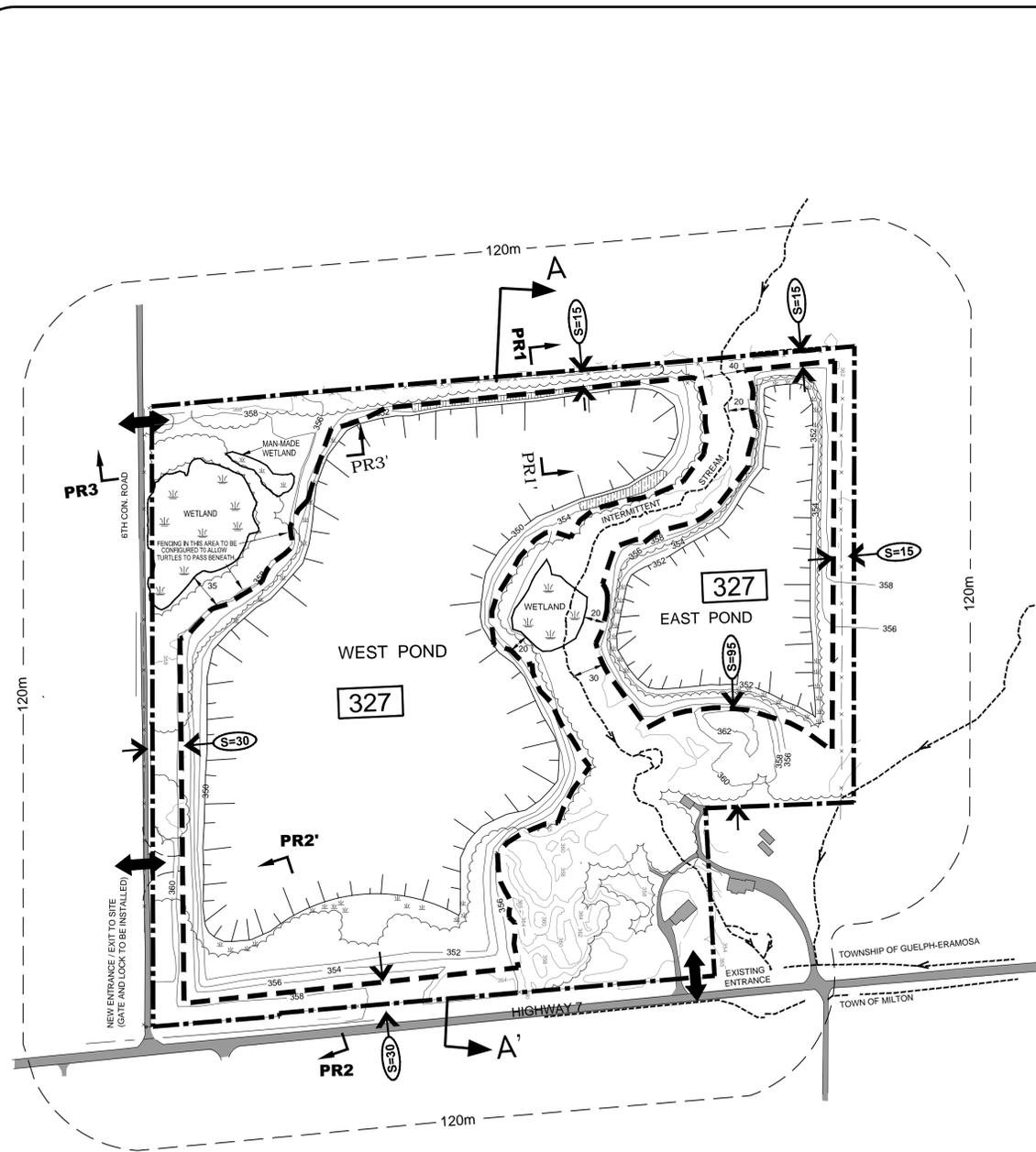
www.jamesdick.com
Box 470 Bolton Ontario L7E 5T4
Bolton:(905)857-3500 Fax:(905)857-4833
Toll Free: 1-888-535-3333

APPROVED: R.P.S. DRAWN: G.K.S.
PLOTTED: OCTOBER 21, 2016 FILE: 2016-09-29-10:00:00 AM

No.	DATE	DESCRIPTION	APP'D



STOVEL and Associates Inc.
655 ORANGEVILLE ROAD
FERGUS, ONTARIO
N1M 1T9
PHONE: (519)843-3112



Ecological Enhancement Strategy:

The goal of the ecological enhancement strategy is to create a growing environment that will provide for the long-term development of a healthy, diverse ecosystem.

The following features will be incorporated into the rehabilitation plan:

- Quarry lake areas, including the littoral zone,
- Quarry face,
- Created wetland areas, and
- Reforested tableland areas.

Quarry Lake Areas:

The extracted quarry lake areas will comprise good quality cold/cool water. The following features will be incorporated into the rehabilitation plan:

- Large boulders can be left in the bottom of the quarry
- Stone and screening piles can be left in the bottom of the quarry
- Boulders, stone and screenings piles can be dumped over the bank of the quarry
- Along the edge of the quarry, a productive littoral zone can be created by dumping soil over the edge. Stumps and logs can be strategically placed along the shoreline.

The opportunity exists to create a diversified shoreline through the extraction process. In near shore areas, on lands that will not be rehabilitated as wetlands, variable shorelines will also be considered. The area receiving this modified side sloping detail focuses on the first 2 m of the final lake water level. Side sloping and planting details similar to the wetland enhancement program will be employed.

Cliff and Talus Slope Rehabilitation:

Cliffs will be created where steep exposures of bedrock remain after extraction that are more than 3 m high. Sharp to variably broken edges, faces, and rims will be established by rough blasting the final face. Vegetation cover will be established that ranges from patch to < 60 % tree cover, and an average substrate depth of < 15 cm. Talus are slopes of rock rubble, with coarse rocky debris making up > 50 % of substrate surface and an average substrate depth of < 15 cm, and a vegetation cover that ranges from patch to < 60 % tree cover. Talus slopes will be created where limestone faces are less than 3m high after extraction. Species to be planted in these areas are Canada Bluegrass, White Cedar, Sugar Maple, and Ironwood.

It is recommended, however, that at least 20 per cent of the quarry face remain barren and untreated.

Created Wetlands:

The site plans illustrate areas on the subject property where wetlands will be created. These areas are in immediate proximity to where the perimeter berming is located. The object of this process is to create wetland with a slope of approximately 5:1 to 10:1. Appropriate native vegetation should be planted in this area.

Reforested Tableland Areas:

Once the tableland areas have been graded using overburden to backfill, these areas should be treated with a layer of topsoil, and then planted with appropriate native vegetation. In general, the tableland areas will have a finished slope not to exceed 2:1. The objective is to achieve a soil mass of 50-100 cm in depth with a topsoil layer that is 10-20 cm in depth.

During the rough grading stage of the northwestern and southern portion of the site, the licensee shall consider creating microhabitat features such as, small depressions, mounding of soil in long, linear formations, brush piles, ephemeral pools, and small stone and screening piles. The intent of this grading program is to diversify the landscape and to create habitat opportunities for a variety of wildlife including amphibians. It is also recommended, that in portions of the rehabilitated quarry, the exposed dolostone quarry floor be left in a roughened condition without the treatment of a soil layer or planted with native vegetation.

Native species, such as white pine, white spruce, white cedar, red oak, sugar maple, red maple, white birch and bur oak, shall be used. Seedling stock from an appropriate nursery can be used with a minimum planting density of 1500 seedlings per ha, planted at a 2.4 x 2.4m spacing. Prior to reforestation common buckthorn and other invasive non-native shrubs shall be cut down low to the ground and/or treated with an appropriate herbicide. A minimum of 70% of the trees planted as part of the reforestation program will be coniferous trees. The following shrubs may be included in the replanting program, grey dogwood, red-osier dogwood, staghorn sumac, nannyberry, chokecherry and serviceberry. Forest cover should be approximately 80% of the tableland area.

To reduce undesirable competition and improve the probability of seedling survival and growth, grass and weed competition in planting areas may be scaped or controlled by other methods.

Watering of planted trees, shrubs and ground cover required during droughty periods.

All vegetation planted shall be maintained in a healthy growing condition. Should planted vegetation die, it shall be replaced within one growing season.

MONITORING

Monitoring will be carried out to ensure that the survival and growth of planted trees, shrubs and ground covers are sufficiently established to restore the site to the desired woodland and wetland vegetation.

Monitoring will be carried out until trees and shrubs are considered free to grow which means their root systems well established and the height of the competing herbaceous vegetation particularly grass and golden rod (i.e. about 1m).

It is estimated that this will take 5 years.

To ensure adequate stocking in reforested areas, there must be at least 80% seedling survival after 5 years or when trees are considered free to grow.

A seedling survival census will be carried out on an annual basis during late summer/early fall to determine the need for refill plantings in failed areas areas the following spring. The same species will be used for refill plantings unless there is good reason for a change. Bareroot transplant stock 20-40 cm in height is recommended for plantings on these difficult sites.

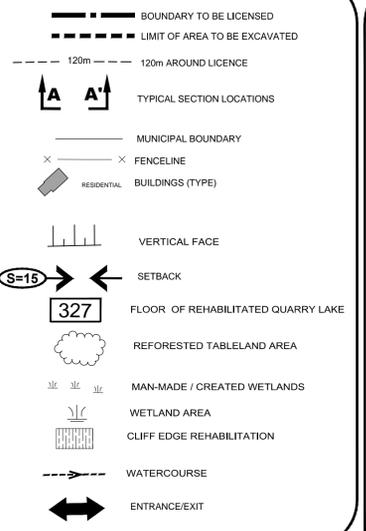
Once Progressive Rehabilitation has commenced:

- Photographic surveys from common vantage points will be taken annually.
- Compliance with final ground elevations shown on the rehabilitation plans (subject to minor modification so long as rehabilitation objectives are met).
- Quarterly assessment of depth of water (not to exceed 2m) for staff gauges installed within created wetland areas.
- Prior to license surrender, a biological survey of wetland vegetation characteristics including species density, distribution and percent cover such that in wetland areas hydrophytic cover will be at least 25% and dominated with rushes, grasses and sedges. Biological surveys of target conservation species will be made at the time of license surrender and results of the study will be circulated to the MNR and the GRCA. Surface water Quality testing will be conducted on a semi annual basis (spring and fall) and will assess nutrient levels (nitrate and phosphorous), pH, dissolved oxygen and alkalinity.

SEDIMENT AND EROSION CONTROL

Due to topographic conditions and the abundance of forest cover on this site, tree protection fencing must be erected at the limit of all setback where ground elevations are equal to or lower than the elevations in the adjacent extraction area. This is particularly required nearby wetlands, in the stream valley and where noise berms are to be constructed. Standard palisade wire farm fence or similar fence will be installed in the locations identified on the Operations Plan after tree clearing and grubbing has been completed. Silt screen must also be attached to the palisade wire fence where required and have its base covered with soil to ensure it can effectively trap sediment. Along the stream corridor silt fence will be located inside the extraction area and there will be a "no touch zone" within 2 meters of the silt fence. Exclusion fencing to be removed during final rehabilitation.

LEGEND:



NOTES:

- General:**
- The site will be rehabilitated to an ecological end use, with two ponds. Wetlands will be created along the edge of the two ponds. Tableland areas will be reforested with appropriate native trees and shrubs as indicated. All tree and shrub planting stock will be obtained from nurseries that utilize native seed from the same genetic seed zone wherein the James Dick Property is located.
 - Surface runoff shall be directed toward the onsite ponds.
 - The access road shall be maintained during the course of progressive rehabilitation efforts.
 - Fencing shall remain around the perimeter of the quarry licence.
 - All equipment and machinery within the extraction limits will be removed upon completion of extraction.
 - The area to be rehabilitated is 24.5 ha.
 - Topsoil that is stripped from operational areas will be placed in screening berms around the perimeter of the site as shown on the site plans. As part of final rehabilitation, the topsoil in berms will be used to achieve final contours as indicated on the site plans.
 - If soil becomes significantly compacted, the rehabilitated lands will be ripped prior to the application of topsoil. The final surface soil layer should be loose with undulations so that soil depth over bedrock is variable and micro-habitats are created.
 - Adequate vegetation will be established and maintained to control erosion of any topsoil or overburden replaced on the site for rehabilitation purposes.
 - The riparian wetland boundary and the PSW boundary were flagged by GWS staff and verified in the field by the GRCA on June 7, 2013.
- Aquatic Rehabilitation**
- The onsite ponds are approximately 13.9 ha and 3.5 ha in size.
 - The predicted final water levels for the lakes are: a) 348.6 masl in the west quarry lake, and b) 348.4 masl, in the east quarry lake.
 - The area extracted below the water table will have a variable slope face that will range from 2:1 to vertical slopes.
 - The rehabilitated lakes will be approximately 23 m in depth. The lakes will be rehabilitated for fish and aquatic habitat. Habitat enhancement measures for the lakes include the following: boulder features, shoals, and littoral zone development.
 - Given the depth of the quarry ponds, it is anticipated to be suitable for walleye and smallmouth bass.
 - Vertical faces can be modified during the final blast. The quarry face can remain roughened, to create ledges and crevices, thus enhancing micro-habitats.
 - Available native, onsite soil and large rock piles or boulders can be dumped over the quarry face to provide a diversity of habitat.
- Wetland Creation**
- The edges of the quarry ponds will be rehabilitated to create artificial wetlands as indicated.
 - Wetland communities can be created along the pond edges with a maximum 2 m water depth from the final estimated water table, i.e. wetland floor at +/- 346 to 349 m MASL.
 - In these wetlands, the excavation pattern will be modified to create a slope of approximately 5:1 to 10:1.
 - Available overburden and soil can be used to create these slopes as well.
 - Available soil can be graded to provide a medium for wetland plant communities.
 - Once the wetland side slope has been graded, a minimum of 100 mm of soil will be applied to this area to permit the establishment of wetland vegetation. This area will be allowed to naturally regenerate to a wetland habitat.
 - Wetland plants suitable for planting in created wetlands include: Northern water-plantain, broadleaf arrowhead, blueflag, pickerel weed, Bebb's sedge, stipitate sedge, soft rush, fowl manna grass, Virginia wild rye, rice cut-grass, woolgrass, dark-green bulrush, softstem bulrush, broad-leaf cattail, white water-lily, water smartweed, sago pondweed, floating pondweed.
 - To help accelerate the natural process of plant succession the following wetland species will be randomly planted in small clusters at a 0.5 to 1.0m spacing along the shoreline of the quarry ponds: northern water plantain, broadleaf arrowhead, as well as the species listed in the point above.
 - Substrates may vary from bare bedrock to parent mineral material (sand, gravel, cobble) to organic substrates. Hydrophytic emergent cover will exceed 25% and be dominated by grasses, sedges, and rushes. Water levels within shallow marsh areas will not exceed 2 m.
- Terrestrial Rehabilitation**
- The side slopes of the setback areas will be graded to achieve a slope of 2:1. Overburden may be applied to the site slope areas and tableland areas to achieve the necessary grade. A minimum of 100 mm of topsoil will be applied to the graded side slope areas.
 - Terrestrial areas will be planted with suitable native shrubs and trees, such as white spruce, white pine and eastern white cedar. Shrubs that may be used include staghorn sumac, red-osier dogwood and raspberry. Additional plants are listed on the Site Plan.
 - The sideslopes and tableland areas of the quarry floor will be covered with available overburden and topsoil and seeded with a suitable native upland meadow seed mix.
 - Should seeding fail, the area shall be re-seeded as soon as possible.
 - Minor grading of the setback areas may be required to permit proper final slopes for the site in areas not to be forested.

SITE PLAN OVERRIDE TABLE

THE FOLLOWING CONDITIONS ILLUSTRATED ON THIS PLAN VARY FROM THE REQUIREMENTS OF THE PROVINCIAL STANDARDS THAT APPLY TO LICENSED FITS IN ONTARIO.

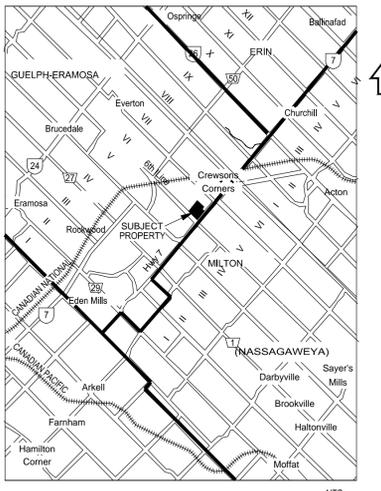
OVERRIDE	STANDARD
VARIANCE OF THE SIDE SLOPES FROM 2:1 IS PERMITTED TO PROMOTE ECOLOGICAL DIVERSIFICATION	5:10
SELECTED TREES WILL NOT BE REMOVED WITHIN 5M OF THE EXTRACTION FACE.	5:5

HIDDEN QUARRY

PART OF LOT 1, CONCESSION 6
TOWNSHIP OF GUELPH-ERAMOSA
FORMER TOWNSHIP OF ERAMOSA
COUNTY OF WELLINGTON

Page 4 of 6 PROGRESSIVE REHABILITATION AND FINAL REHABILITATION

KEY MAP



THIS SITE PLAN IS PREPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE, CATEGORY 2 - QUARRY BELOW WATER.

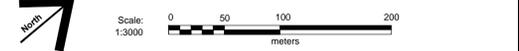
THESE SITE PLANS HAVE BEEN PREPARED UNDER THE DIRECTION OF AND CERTIFIED BY A PERSON APPROVED BY THE MINISTER OF NATURAL RESOURCES (AS PER SECTION 8(4) OF THE AGGREGATE RESOURCES ACT).

SIGNATURE: _____ DATE: _____

PREPARED FOR: **JAMES DICK CONSTRUCTION LTD**
www.jamesdick.com
Box 470 Bolton Ontario L7E 5T4
Bolton:(905)857-3500 Fax:(905)857-4833
Toll Free: 1-888-535-3333

APPROVED: R.P.S. DRAWN: G.K.S.
PLOTTED: OCTOBER 21, 2016 FILE: 20130220/20130220/20130220/20130220/20130220/20130220/20130220/20130220/20130220/20130220

No.	DATE	DESCRIPTION	APP'D
AMENDMENTS			



STOVEL and Associates Inc. 655 ORANGEVILLE ROAD
FERGUS, ONTARIO
NIM 1T9
PHONE (519)843-3112

MONITORING PROGRAM and Contingency Measures

September 22, 2016

1.0 On-Site Monitoring Program

Monitoring has taken place at this site since 1995. An extensive database of background groundwater and surface water elevations and flow measurements has been developed. A detailed monitoring program will continue to ensure that sensitive features and surface water flows are maintained. The monitoring program is designed to identify trends towards unacceptable impacts early on to allow for time to implement contingency measures.

The monitoring program for this pit/quarry involves the following activities:

- measuring groundwater levels,
- obtaining water quality samples,
- monitoring water levels in the on-site wetland and stream, and
- stream flow measurements.

We recommend the following monitoring program.

Parameter	Monitoring Locations	Frequency
Groundwater Levels	M13/D, M2, M3, M4, M5, M13/D, M14/S/D, M15, M16, M17, M18, M19, MPN1, MPN2, MPS1, MPS2, MPE1, MPE2, MPW1, MPW2, TP1, TP8, TP9, MP1, MP2, MP3, MP4	Manually Monthly Automatic Daily Measurement in M1/D, M2 M3, M4, M13/D, M15, M16, M19 for year prior to and year following bedrock extraction with reevaluation of monitoring frequency after 1st year of bedrock extraction
Groundwater Levels	M2, M3, TP1, M13/D, M14/S/D, M15, M16, M17	5 minute interval during first 12 months of extraction
Surface Water Level	Sinking Cut	Between initial blast and establishing safe quarry face daily measurements will be obtained from groundwater monitor M3. Automatic Daily after safe quarry face is established.
Surface Water Level	Water Wash Pond	Daily
Surface Water Level	DeGrandis Pond	Data Logger
Surface Water Level	SW14, SW5, SW7	Manually Monthly Coincident with groundwater monitoring
Surface Water Levels	SW6, SW4, SW8	Automated Water Level Readings (4 hour interval)
Surface Water Flow	SW4, SW8, SW3	Manually Monthly coincident with groundwater monitoring
Surface Water Flow	Brydson Spring	Daily water levels with associated stream flow rating curve.
Groundwater Quality	W1, M2, M3, M4, M15, M16, M17, M18, M19	Semi-Annually
Groundwater Temperature	M4, M16, M18, M19 Brydson Spring	Auto Daily
Surface Water Quality	West Pond, East Pond, Northwest Wetland Tributary B (SW4, SW3)	Semi-Annually (Spring and Fall)
Climate	On-Site Weather Station at Scale House to include precipitation and temperature	Daily
Domestic Wells Water Level	W3, W4, W5, W6, W9, W31 (W7 removed at request of landowner) (see also Section 4.0)	Data Loggers daily
Domestic Well Water Quality	W10*, W11, W16*, W17*, W18*, W19*, W20, W21, W22, W23, W24	Quarterly bacteria, nitrate and temperature (daily temperature data logger)

Monitoring locations are shown on page 1 of the Site Plans. Offsite residential monitoring is contingent upon permission from the respective property owner. The frequency of offsite monitoring may be revised in the future based on a review of the data.

Well Identifier Location Addresses for Post Approval Quarterly Sampling

Well Identifier	Address
W10	8540 Hwy 7
W11	8554 Hwy 7
W16	5134 Hwy 7
W17	14321 5th Line Nassagaweya
W18	14297 5th Line Nassagaweya
W19	5036 Hwy 7
W20	4300 Hwy 7
W21	4264 Hwy 7
W22	5198 Hwy 7
W23	4248 Hwy 7
W24	8470 Hwy 7

2.0 WARNING AND TRIGGER LEVELS

Groundwater and surface water monitoring will be used at this site to a) verify that actual water level changes in the bedrock aquifer do not exceed those predicted and b) verify that the hydro-period of the northwest wetland does not change. The water level measurements obtained as part of the monitoring program will be used to trigger contingency measures that may be necessary for the mitigation of a low water level in the northwest wetland, a lower than expected water level in the bedrock aquifer or an anomalous low flow level in Tributary B.

The trigger levels are used to initiate contingency and mitigation responses outlined in Section 3. Once water levels recover above the trigger level, normal operations will commence at the site.

2.1 Warning Levels

If a warning level is breached, on site manual water levels will increase from monthly to weekly and an analysis will be undertaken to determine the cause. If it is determined that quarry activity is the cause, the activity will be modified to avoid breaching a Trigger Level. Monitoring frequency will return to normal after the level recovers above the warning level.

2.2 Trigger Levels for the Bedrock Aquifer

The greatest water level change in the bedrock aquifer is expected to occur to the north and northwest of the site. Water levels obtained from bedrock monitors M10, M13/D, M14/D and M2 will be used to verify that actual water level changes do not exceed the predicted water level change. A warning level of 75% of the predicted change will be used to initiate weekly manual measurements from the groundwater monitors.

Table 1: Trigger Levels for the Bedrock Aquifer

Monitor	Historical Low	Predicted Change	Warning Level	Trigger Level
M1/D	350.58	0.8	349.98	349.78
M2	349.81	2.0	348.31	347.61
M13/D	352.68	1.4	351.63	351.28
M14/D	353.48	1.5	351.63	351.28
M15	TBD			
M16	TBD			
M17	TBD			
M4	TBD			
M18	TBD			
M19	TBD			

TBD - to be determined

2.3 Trigger Level for Northwest Wetland and Allen Wetland

Water levels from Station SW6 will be used to trigger contingency measures for the northwest wetland. Historical monitoring has shown that the water level in the wetland is somewhat independent from adjacent groundwater levels and therefore any potential change in the hydro-period is best determined by the surface water level in the wetland.

Trigger levels and warning levels have been determined for three periods as follows:
 Winter Trigger Level - lowest water level observed between December 1 and March 1
 Spring Trigger Level - lowest water level observed between March 2 and June 15
 Summer/Fall Trigger Level - lowest water level observed between June 16 and November 30.

A warning level is established 0.15 metres higher than the trigger level.

Table 2: Trigger Levels for the Surface Water Features

Station	Spring				Fall	
	Warning	Trigger	Warning	Trigger	Warning	Trigger
Northwest Wetland (SW6)	354.35	354.20	354.48	354.33	354.38	354.23

The warning level will be a flow rate of less than 25 L/s occurring in May and the trigger level will be cessation of flow prior to June 22.

Manual water level measurements will increase to weekly if the warning level is exceeded.

2.4 Trigger Level for Sinking Cut

James Dick Construction Ltd. has agreed to a maximum water level change of 2.54 metres in the sinking cut. The nearest groundwater monitor to the sinking cut is M3. The low water level in M3 is 349.37 m AMSL. We propose to use this as the reference elevation resulting in a minimum water elevation in the sinking cut of 349.37 - 2.54 = 346.83 m AMSL. JDCL proposes to hang a buoy from a tether with the buoy floating in the water until the water level falls below an elevation of 346.83 m AMSL. The buoy will be a visual indicator of the minimum water elevation allowed to the operator. Alternative methods such as a sonic water level reader may be employed. Extraction will cease if the water level falls below 346.83 m AMSL and can only commence with a water level above 346.83 m AMSL in the sinking cut. James Dick Construction Ltd. will also provide data from an automatic water level recording device on a weekly basis until data indicates that water levels are remaining consistently above the trigger level.

2.5 Trigger Level for Wash Water Pond

Prior to constructing the wash pond, a water monitor MWP (Monitor for Wash Pond) will be established within the footprint of the wash pond. James Dick Construction Ltd. has agreed to a maximum water level change along the southern property boundary not to exceed the historical low in M4, M18 and M19. Also, the water level in the wash pond will be monitored and controlled as in the sinking cut with a maximum water level change of 2.54m below the established MWP static water level. Water taking will only occur from the wash pond when water levels are above these limits. Trigger levels will be determined based on lowest historical water levels for M4, M18, and M19 to ensure the water taking from the wash water pond does not have an impact beyond the property boundary.

3.0 Contingency Measures

3.1 Groundwater Levels and Northwest Wetland

If any trigger level is breached, the following measures will be taken:
 Confirmation of water level within 24 hours, increase monitoring to weekly until source of the trigger level exceedance is identified. Data from automatic water level recorders (AWLR) will be downloaded and reviewed on a weekly basis.

- 1) Within seven days complete an evaluation of precipitation, groundwater monitoring data and quarry activities to determine if quarry activities are responsible for the low water level observed. The water level data from the AWLRs will be plotted and the water level trends analyzed so that the time it will take for the water level to recover above the trigger level can be predicted.
- 2) Data from all ALWRs will be provided to the Township of Guelph-Eramosa on a bi-weekly basis until the data indicates that water level are remaining consistently above the trigger level.
- 3) If quarry activities are found to be responsible, James Dick Construction Ltd. will undertake one of the following contingency measures and a response will be presented to the MNRF, the GRCA, the Township of Guelph-Eramosa.
 - Decrease the rate of or cease below water table extraction.
 - Increase the length or width of the hydraulic barrier
 - Alter mining configuration or mining extent
 - Alter timing of mining activities to coincide with seasonal high water level
- 4) If quarry activity is not found to be the cause or contributor to the trigger level breach, then quarry activity will continue and monitoring frequency will return to normal.

3.2 Water Quality

The water quality program will commence at least one year prior to bedrock extraction.

Groundwater Monitors and the East and West Pond

The monitoring parameters that will be included in the semi-annual monitoring will be general chemistry (includes pH, electrical conductivity, TSS, hardness/alkalinity), cryptosporidium, giardia, E. coli, TKN, ammonia, DOC, pH, temperature, anions and metals.

- 1) Semi-annual testing (commencing immediately) of the water quality of private wells that could potentially be impacted by the quarry.
- 2) In the event that the quarry operation causes water in a private well to become unpotable, JDCL will offer to return the water quality to within ODVQ Standards by providing appropriate treatment in the home, capping a new well or isolating the water supply to the deeper aquifer.

Northwest Wetland and Allen Wetland
 The northwest wetland and Allen wetland will be analyzed for nitrate, dissolved oxygen, temperature, conductivity and pH for a period of three years or upon completion of construction activities (i.e. berms, barriers, access roads) in the surface water catchment area of the northwest wetland whichever is longer. Sampling will occur on a semi-annual basis.

Domestic Wells
 Private domestic wells W10, W11, W16, W17, W18, W19, W20, W21, W22, W23 and W24 will be sampled four times a year for bacteria, temperature and nitrate. Wells equipped with data loggers will record temperature daily with levels.

3.3 Water Temperature Monitoring

Based on current industry information, the quarry is not expected to cause any unacceptable off site temperature impacts on downstream surface or ground water. In order to ensure this is the case, water temperature monitoring will take place at all on site monitoring wells that have a data logger. This will provide a large data set with a high frequency of data points. In addition, subject to owner permission, water temperature monitoring will take place at the Brydson Spring and at private residential wells that either have data loggers or that take part in the Domestic Well Water Quality program.

Water temperature data will be analyzed for any trends in order to identify if there are any potential effects on site prior to there being any off site. The cause of any trends will be investigated and appropriate measures (consideration of technical solutions - barriers, change in extraction plan, etc.) will be taken to ensure the quarry does not cause any unacceptable impacts to off site water users. The analysis and recommendations will form part of the annual monitoring report.

4.0 Pre-Bedrock Extraction Water Well Survey

A detailed water well survey shall be completed prior to the commencement of the extraction of bedrock resources. This survey will as a minimum include all wells in the shaded area shown on Figures C6 dated December 2014. The well survey will include the following:

- construction details of the well (drilled, bored, sand point etc.)
- depth of well and depth of water
- location of well relative to septic system
- static water level
- history of water quantity or quality issues

comprehensive water sample including bacteriological analysis, general chemistry (includes pH, electrical conductivity, TSS, hardness/alkalinity), anions and metals, temperature

- one hour flow test

The purpose of the survey is to have a baseline evaluation of both water quality and water quantity in nearby water wells. Should an issue arise with a local water well, the baseline data can be used as a reference against future measurements.

If there are domestic wells suitable for water level monitoring identified in the survey, they will be included in the water level monitoring program and monitored on a semi-annual basis. If the survey indicates that modification(s) to the well are necessary either for continued monitoring or to minimize the potential for impact, the modifications will be made to the well at the expense of James Dick Construction Ltd.

5.0 Annual Monitoring Report and Interim Report

An annual report will be prepared and submitted to the Ministry of the Environment and the Ministry of Natural Resources on or before March 31st of the following calendar year. The report will be prepared by a qualified professional, either a professional engineer or a professional geoscientist. The monitoring report will include all historical monitoring data and an interpretation of the results with respect to potential impact to the quality and quantity of bedrock groundwater, hydro-period of the northwest wetland and streamflow loss from Tributary B.

6.0 WATER WELL COMPLAINTS

James Dick Construction Ltd. agrees to inform the Township of Guelph-Eramosa, Town of Milton, Region of Halton and the Ministry of the Environment upon the receipt of a water well complaint and the results of any related investigation. A detailed well complaint protocol is attached as Appendix A.

Appendix A

Water Well Complaint Protocol - Hidden Quarry

James Dick Construction Ltd. has committed to remedying any and all issues arising as a result of quarry activities. The following complaint protocol will be followed:

Complaints about water well issues will be received any time at _____. Text messages can be sent to _____ or email to _____. James Dick Construction Ltd. has a water well contractor on stand-by to address any water quantity or quality issue that arises.

In the event of a water shortage a supply of bottled water for drinking/cooking will be delivered within 12 hours of the complaint and an alternative water supply will be delivered within 24 hours of the complaint being received. The same commitment is made for agricultural operations and includes sufficient water supply for all farm requirements.

Within 48 hours, JDCL will initiate a hydrogeological investigation conducted by an independent hydrogeologist to determine the cause of the water issue. The investigation will include but not be limited to the following actions:

- Review of historical measured precipitation rates
- Confirmation of water levels in on-site groundwater monitoring wells
- Review of historical trends in groundwater levels and groundwater quality obtained in on-site groundwater monitoring wells.
- Interview with resident regarding well complaint
- Investigation of subject well including flow testing, water level measurements and water quality testing if necessary
- Written report summarizing the findings.

In the event that quarry activities are likely to be the cause of the complaint, James Dick Construction will undertake appropriate mitigative measures such as:

- Lowering the level of the pump within the well
- Extending the cased portion of the well
- Deepening the well
- Well replacement
- Water Treatment
- Modification of quarry activities.

JDCL will undertake appropriate mitigative measures such as:

- Lowering the level of the pump within the well
- Extending the cased portion of the well
- Deepening the well
- Well replacement
- Water Treatment
- Modification of quarry activities.

BEST MANAGEMENT PRACTICES FOR DUST

1 INTRODUCTION

1.1 OVERVIEW

This Best Management Practice Plan (BMP) for dust was prepared for James Dick Construction Limited (JDCL) for implementation at their proposed Hidden Quarry. This site has two distinct stages of operations:

- The first stage occurs above water, and involves site preparation, above-water extraction of aggregate via front-end loader or excavator, transportation, processing, washing, stockpiling and shipping.
- The second stage of operations occurs at and below the water table, and involves underwater drilling, blasting, and extraction of aggregate via dragline, dewatering, transportation, processing, washing, stockpiling and shipping.

This plan includes dust control measures that meet or exceed the current industry standards. Implementation of these measures will ensure that dust is effectively controlled and off-site impacts are minimized.

1.2 COMPONENTS OF A BEST MANAGEMENT PRACTICES PLAN

A BMP outlines the fugitive dust sources at a given site and describes the measures that shall be used to control emissions from these sources. The MOECC requires that a BMP for dust must include the following:

- Details regarding the size and composition of the dust;
- A description of the emission sources from the facility;
- A summary of control measures that are or will be put in place as part of the BMP;
- An implementation schedule for the control measures;
- An implementation plan for the control measures;
- Details regarding the inspection and maintenance scheduling; and,
- A description of the planned monitoring and record keeping activities.

1.3 SIZE AND COMPOSITION OF FUGITIVE DUST AT SAND & GRAVEL OPERATIONS

Typically, the dust at an aggregate operation has the following characteristics:

- Primarily composed of calcium carbonate, oxides of iron, magnesium and aluminum and/or silicon;
- Fraction of dust smaller than 10 micrometres (PM₁₀), 19-25%;
- Fraction of dust smaller than 2.5 micrometres (PM_{2.5}), 3-14%; and,
- Crystalline silica content of onsite material, with measured values of less than 8%.

1.4 OVERVIEW OF THE BEST MANAGEMENT PRACTICES PLAN

This document provides a separate section for fugitive dust sources at the facility, including a description of each source, complete with control measures applicable to that source.

1 Based on data from the AP-42 Compilation of Air Pollutant Emission Factors, published by the United States Environmental Protection Agency.

2 SITE PREPARATION

2.1 ACTIVITIES INCLUDED

- Overburden removal using an excavator and haul trucks.
- Berm construction using haul trucks and bulldozer.

2.2 CONTROLS FOR OVERBURDEN REMOVAL AND BERM CONSTRUCTION

- Avoid overburden removal and berm construction operations, if possible, during dry months, i.e. July, August and September and during peak periods of extraction and processing of aggregates.
- Overburden removal and berm construction operations shall be monitored hourly when the following criteria are met:
 - Dry weather is anticipated.
 - Overburden removal activities are within 165 m of a residence including the mushroom berm; and,
 - Winds are anticipated to be blowing towards the residence.
- If visible dust is observed under these conditions, these operations shall be reduced, or additional mitigation measures shall be undertaken, such that visible dust is prevented from leaving the site

3 AGGREGATE EXTRACTION

3.1 ACTIVITIES INCLUDED

- Excavation and loading of sand and gravel onto off-road haul trucks at working face by excavators and/or front end loader during above-water sand and gravel extraction operations.
- Sub-aqueous drilling, sub-aqueous blasting, extraction of aggregate via dragline, dewatering and loading of shot rock onto off-road haul trucks at working face by excavators and /or front end loader during below-water quarry operations.

3.2 CONTROLS FOR ABOVE-WATER SAND AND GRAVEL EXTRACTION

- Excavation and loading operations shall be monitored hourly when all of the following criteria are met:
 - Dry weather is anticipated.
 - Excavation and loading activities are within 165 m of a residence including the mushroom berm; and,
 - Winds are anticipated to be blowing towards the residence.
- If visible dust is observed under these conditions, these operations shall be reduced, or additional mitigation measures shall be undertaken, such that visible dust is prevented from leaving the site.

3.3 CONTROLS FOR BELOW-WATER QUARRYING OPERATIONS

- Fugitive dust emissions from the sub-aqueous drilling, sub-aqueous blasting, extraction of aggregate via dragline and dewatering activities are expected to be minimal to non-existent.
- Loading operations shall be monitored hourly when all of the following criteria are met:
 - Dry weather is anticipated.
 - Excavation and loading activities are within 165 m of a residence; and,
 - Winds are anticipated to be blowing towards the residence.
- If visible dust is observed under these conditions, these operations shall be reduced, or additional mitigation measures shall be undertaken, such that visible dust is prevented from leaving the site

4 AGGREGATE PROCESSING

4.1 ACTIVITIES INCLUDED

- Aggregate crushing, screening, washing and stockpiling at the portable processing plant.
- Aggregate crushing, screening, washing and stockpiling at the permanent processing plant.

4.2 CONTROLS FOR PORTABLE PROCESSING PLANT

- The portable processing plant, stockpile area and loading of trucks around the stockpiles shall be at least 300 metres from the nearest residence.
- The portable processing plant shall be equipped with a water spray system. Spray bars shall be located at various locations as needed to control visible dust emissions such as at the crusher, screens, and on the conveyor belt system.
- Watering rate will be set as needed to suppress visible dust.

- For screenings and other high-fines materials, stockers will be kept as close to the tops of stockpiles as is feasible, to achieve a drop height of approximately 1m or less.
- The processing rate shall not exceed 400 tonnes/hour.
- When the temperature is below 4°C, the use of water sprays is not feasible. Under these conditions, operations shall be reduced, or other mitigation measures implemented, such as enclosures or wind screens, such that visible dust is prevented from leaving the site.

4.3 CONTROLS FOR PERMANENT PROCESSING PLANT

- The permanent processing plant, stockpile area and loading of trucks around the stockpiles shall only be located within the processing plant area shown on the Operational Plan.
- The permanent processing plant shall be equipped with a water spray system. Spray bars shall be located at various locations as needed to control visible dust emissions such as at the crusher, screen, and on the conveyor belt system.
- Watering rate will be set as needed to suppress visible dust.

- For screenings and other high-fines materials, stockers will be kept as close to the tops of stockpiles as is feasible, to achieve a drop height of approximately 1m or less.
- The processing rate shall not exceed 500 tonnes/hour.
- When the temperature is below 4°C, the use of water sprays is not feasible. Under these conditions, operations shall be reduced, or other mitigation measures implemented, such that visible dust is prevented from leaving the site.

5 HAUL ROUTES

5.1 ACTIVITIES INCLUDED

- Unpaved haul routes for haul truck traffic from working face to processing plant.
- Unpaved haul routes in and around the processing plant area.
- Paved haul route for shipping traffic from the site entrance to the processing plant loop.

5.2 CONTROLS FOR UNPAVED HAUL ROUTES

- A water truck and sufficient water supply shall be available to provide water to all significant unpaved traffic areas.
- The watering system shall be able to deliver the water evenly over the haul route surface, and shall have the capacity to deploy water on all active haul routes at a rate of at least 1.5 L/m²/hour.
- The actual watering rate shall vary, depending on surface moisture conditions and traffic conditions, and shall be triggered by the Operational Watering Forecasting guidance provided in Section 8 of this BMP Plan.
- At the start of each day, prior to trucks accessing the haul routes, the travel surfaces will be inspected, and water will be applied if dry conditions are found.
- A speed limit of 20 km/h shall be posted near the site entrance. Haul truck and highway truck operators will be directed to observe the speed limit.
- When the temperature is below 4°C, watering is not recommended for safety reasons. Under these conditions, operations shall be reduced, or other mitigation measures implemented such that visible dust is prevented from leaving the site.

5.3 CONTROLS FOR PAVED HAUL ROUTES

- A section of the internal haul route, extending from the site entrance to the processing plant loop, shall be paved.
- 6th Line, from the site entrance, south to Highway 7 shall be paved.
- A speed limit of 20 km/h shall be posted near the site entrance. Haul truck and highway truck operators will be directed to observe the speed limit.
- The facility shall have the capability to flush the on-site paved surface, as well as south along 6th Line from the site entrance to Highway 7.
- In dry weather, the on-site paved surfaces as well as 6th Line, south to Highway 7, shall be inspected at the end of each day's shift and flushed if necessary to provide a clean entrance for the start of the next day's operations.
- The frequency of flushing shall vary, depending on surface moisture conditions and traffic levels, and shall be triggered, as soon as practical, whenever routine inspections indicate that there is visible track-out on the pavement (may need to be flushed once or twice per day, during peak operating periods).
- When the temperature is below 4°C, flushing is not recommended for safety reasons. Under these conditions, other mitigation measures, such as sweeping, shall be implemented.

6 WIND EROSION

6.1 ACTIVITIES INCLUDED

- Wind erosion may occur at disturbed areas, or at stockpiles that have relatively high silt contents, such as screenings or granular aggregate
- Disturbed areas include the working face during above-water sand and gravel extraction, areas that have been stripped but not yet extracted, and areas that have been extracted but not yet rehabilitated.
- Wind erosion of these piles will only occur when winds exceed a threshold wind speed level, which is typically on the order of 5-7 metres per second (18-25 km/h).

6.2 CONTROLS FOR WIND EROSION

- The amount of disturbed area will be kept to the minimum necessary for extraction to proceed in an efficient manner. Progressive rehabilitation will be used to reduce erosion from previously extracted areas, in accordance with recommendations in Section 8.
- Stockpiles of finer-grained material will be located on the eastern side of the plant area so as to be sheltered from prevailing winds by other piles.
- The site is surrounded by pine plantation and other forest cover. These trees shall be retained around the perimeter of the site as is shown on the ARA site plans. At least 3 rows of conifers shall be retained where possible, forming a screen of trees approximately 10 metres in total width.
- Where berms are constructed, these shall be reforested at the earliest date possible and adjacent trees shall be retained until such time as the reforestation achieves a height of 2m.

7 PROGRESSIVE AND FINAL REHABILITATION

7.1 ACTIVITIES INCLUDED