

**VERMONT ENVIRONMENTAL BOARD
10 V.S.A. Ch. 151**

*Re: Pike Industries, Inc.
and Inez M. Lemieux*

Land Use Permit #5R1415-EB

Findings of Fact, Conclusions of Law, and Order

This matter involves an appeal by Pike Industries, Inc. (Pike) to the Environmental Board (Board) from Findings of Fact, Conclusions of Law, and Order (Decision) issued by the District 5 Environmental Commission (Commission) concerning Land Use Permit Application #5R1415. The Decision denied Pike authorization to operate a stone quarry and aggregate processing facility on a 90± acre tract located in the Town of Williamstown (Project).

For the reasons stated below, the Board finds that the Project complies with the criteria of 10 V.S.A. Ch. 151 (Act 250) and remands this matter to the Commission for the issuance of a Land Use Permit.

I. History

On June 4, 2004, the Commission issued the Decision.

On June 29, 2004, Pike filed an appeal with the Board from the Decision alleging error with respect to 10 V.S.A. §§6086(a)(3), (5), (8)(aesthetics), (9)(E), (9)(K), and (10).

On July 13, 2004, Shirley Poulin, Barrett and Lynda Gregoire, Thomas and Cheryl Semprebbon, Kevin Burrell, Pierre and Carmen Ducharme, Joe and Sandy Cafarelli, Ray and Lucy Jalbert, Joe and Suzie Willette, Jeff and Karen Blow, Roland and Claudette Riendeau, and Larry and Michelle Lessard (the ROQIN parties) filed a cross-appeal with the Board from the Decision alleging error with respect to 10 V.S.A. §§6086(a)(1), (2) and (8)(aesthetics).

On August 10, 2004, Board Chair Patricia Moulton Powden convened a Prehearing Conference with the following participants:¹

¹ In July and August 2004, Patti and Vincent Covino, John and Dorothy Martin, Fernand and Ann Peloquin, Joseph and Lorraine Aja, and Carla Safford all filed documents with the Board indicating their desire to participate as parties in this matter.

Pike by John W. O'Donnell, Esq. and Vincent A. Paradis, Esq.
Town of Barre by Carl Rogers
Shirley Poulin, Barrett and Lynda Gregoire, Thomas and Cheryl Semprebon,
Kevin Burrell, Joe and Sandy Cafarelli, Ray and Lucy Jalbert, Joe and Suzie Willette,
Jeff and Karen Blow, Roland and Claudette Riendeau, and Larry and Michelle
Lessard (the ROQIN parties) by Andrew Raubvogel, Esq.
Pierre and Carmen Ducharme by Paul Gilles, Esq.
Patti and Vincent Covino
Dorothy Martin

The Board deliberated on the Preliminary Issues (party status) on October 27, 2004, and issued a Memorandum of Decision on November 19, 2004.

Hearings on the merits of this matter were held on January 12, 13, 19, 26, and 27, and February 9, 2005.²

The Board deliberated on February 23, March 23, April 13, and May 18, 2005.³ This matter is now ready for final decision.

II. Issues

The Issues in this matter are:

1. Whether the Project complies with 10 V.S.A. §6086(a)(1)(air).
2. Whether the Project complies with 10 V.S.A. §6086(a)(2).
3. Whether the Project complies with 10 V.S.A. §6086(a)(3).
4. Whether the Project complies with 10 V.S.A. §6086(a)(5).
5. Whether the Project complies with 10 V.S.A. §6086(a)(8) (aesthetics).

² All of the persons noted above appeared on all or some of the hearing days. The Agency of Transportation, by Assistant Attorney General Trevor Lewis, and the Town of Barre, by Stephen A. Reynes, Esq., also appeared on certain hearing days.

³ Board Member Roy was not present at the May 18, 2005 deliberation.

6. Whether the Project complies with 10 V.S.A. §6086(a)(9)(E).
7. Whether the Project complies with 10 V.S.A. §6086(a)(9)(K).
8. Whether the Project complies with 10 V.S.A. §6086(a)(10).

III. Findings of Fact

To the extent any proposed findings of fact and conclusions of law are included below, they are granted; otherwise, they are denied. *See, Secretary, Agency of Natural Resources v. Upper Valley Regional Landfill Corporation*, 167 Vt. 228, 241-42 (1997); *Petition of Village of Hardwick Electric Department*, 143 Vt. 437, 445 (1983).

A. The Project

1. The Project is a rock quarry located on 90 acres in the Town of Williamstown.
2. Approximately 30 acres of land will be eventually quarried in six five-acre cells.
3. The quarrying will begin at the western end of the eventual pit area and move eastward, cell by cell.
4. The operations area and the six quarry excavation cells have varying amounts of stone and thus their life spans will vary. The estimated aggregate in each cell is: Operations area – 280,000 tons; Cell 1 – 820,000 tons; Cell 2 – 1,300,000 tons; Cell 3 – 1,500,000 tons; Cell 4 – 1,900,000 tons; Cell 5 – 2,000,000 tons; Cell 6 – 1,600,000 tons. These estimates could be off by as much as +/-15%.
5. The quarry, at full excavation, will result in a pit that is 900 feet across at its eastern end, and 1,900 feet long. The proposed eastern edge of the quarry pit (which will result from the excavation of Cells 5 and 6, as proposed) is within 300 feet of McGlynn Road.
6. The existing elevation at its proposed eastern excavation boundary is approximately 1140 feet above sea level (a.s.l.). The quarry floor throughout the

project will be at elevation of approximately 950 feet a.s.l, resulting in the removal of about 190 vertical feet of material at the quarry's eastern end.

7. An additional 30 acres of land at the Project site will be utilized for operational areas.

8. Pike proposes to quarry, process, and sell a maximum of 300,000 tons of crushed rock per year.

9. Pike estimates that a total of 9.5 million (+/- 15%) tons of stone will be extracted over the life of the quarry.

10. At the rate of 300,000 tons per year (with somewhat less in the first three years), work may not begin in Cell 5 until Year Twenty-one and may not end by the time the permit expires in Year Twenty-five.

11. Based on its estimates of the amount of rock presently within the quarry boundaries, Pike may need a permit amendment after 25 years in order to completely quarry the entire site through Cell 6.

The Project site

12. The Project site is on the west slope of a hill which rises from the Stevens Branch river valley. The site is situated approximately half way up the hill and rises in elevation from 950 feet to 1,180 feet a.s.l..

13. The site is characterized by flat and sloping meadows and forested areas.

14. Adjoining properties to the northeast, east and southeast of the tract are developed with residences in a density consistent with the Project's rural setting.

15. On adjoining properties directly to the west and south are ongoing earth extraction projects operated by the Towns of Barre and Williamstown.

16. The Project tract is situated wholly within the Town of Williamstown. The northern boundary of the tract is the border between the Towns of Williamstown and Barre.

The quarry operations

Operations prior to extraction of quarried rock

17. The clearing of vegetated cover, the stripping of topsoil and overburden, the construction of settling ponds, logging, and the disposal of stumpage must all occur before rock is actually excavated from the Project site.
18. A “Stump Disposal Cell #1” area will be used at the time that the settlement ponds and Cell 1 are created, during Years One - Three.
19. The “Stump Disposal For Operations” area will only be used in Year One.
20. The stump disposal areas will be open for less than a week; earthwork in the meadow adjacent to McGlynn Road will be completed within six weeks; and plantings will take an additional couple of weeks. Work in the topsoil stockpile area and sediment ponds will take four months. The operations area and the settlement ponds will be constructed in Year One. Cell 1 development will begin in Year Two.

Quarry excavation operations

21. Quarry excavation operations include drilling, blasting, excavating, stockpiling, loading, hauling and processing of crushing quarried rock in order to produce a variety of sized crushed rock products, and the construction of settling ponds, haul roads, stockpile areas, a sales facility, and other improvements – all as depicted on the site plans.
22. Crushing, hauling and other noise-producing activities will occur between the hours of 7:00 a.m. and 5:00 p.m.

Drilling, crushing and blasting

23. On-site drilling and crushing operations will take place annually during the period from April 15 to November 15, Monday through Friday, between the hours of 7:00 a.m. and 5:00 p.m. During these days, blasting will occur only between the hours of 9:00 a.m. and 3:00 p.m.

24. No drilling, blasting or crushing will occur on weekends.

25. Blasting will occur once in every eight to ten working days, or approximately 15 times during an operational season. Pike anticipates that there will be four days of drilling, eight hours per day (or 32 hours total), prior to each blast.

26. Development blasts will occur one to two times per week. Development blasts will be needed at each 50 foot bench. Pike had no estimates on the frequency or duration of drilling for development blasts.

27. Crushing will occur between the hours of 7:00 a.m. and 5:00 p.m., Monday through Friday.

Quarry roads

28. The haul road will be used through the early cells for access to successive cells.

29. A roadway of approximately 1,700 feet in length will run from the quarry site to Vermont Route 14. This road will be constructed on the project tract and will also necessitate modifications and improvements to an existing haul road serving the extraction projects conducted by the Towns of Barre and Williamstown.

Trucking, loading and hauling, and on-site sales

30. The quarry will operate for sales, loading and hauling, and equipment maintenance, Monday through Friday, between the hours of 6:00 a.m. and 6:00 p.m.

31. Between the hours of 6:00 a.m. and 7:00 a.m. and the hours of 5:00 p.m. and 6:00 p.m, the only on-site activity will involve "sales", i.e., loading aggregate onto trucks for off-site delivery.

32. The facility will be open for the sale and hauling of aggregate material on Saturdays, year round, between the hours of 8:00 a.m. and 5:00 p.m.

33. Aggregate material will be available for retail and wholesale sales to other persons for deliveries throughout the region.

34. Pike's trucks entering and leaving the site will be 20-ton tandem trucks, and 3-axle trucks.

35. The majority of the aggregate material will be hauled to Pike's asphalt production facility off Vermont Route 62 in the Town of Berlin.

B. Criterion 1

36. Emission of pollutants will be caused by a number of activities at the site – clearing, drilling, blasting, use of the haul roads, crushing, loading and trucking. The types of pollutants generated from these activities include particulate matter, silica, and numerous hazardous substances in diesel exhaust.

37. A rock crushing operation is an "air contaminant source" under section 5-401 of the Vermont Air Pollution Control Regulations.

38. The proposed quarry will require a site-wide Air Pollution Control Permit from the Department of Environmental Conservation's Air Pollution Control Division (APCD) prior to initiating any on-site work. Pike has applied for this permit.

39. Extraction at the Project will operate within the following production limitations: 550 tons/hour; 5500 tons/day, 300,000 tons/year.

Oxides of nitrogen (NOx)

40. The diesel generators powering the crushing plant will generate NOx emissions. However, as proposed in Pike's amended application for a permit from the APCD, emissions of oxides of nitrogen (NOx) from the crushers' generators will not exceed the threshold for air dispersion modeling.

41. The APCD does not regulate NOx or particulate emissions from mobile sources, such as haul trucks.

Dust

42. Dust will be created by the Project's drilling, blasting, crushing, trucking and earth moving operations.

43. The access road will be constructed with recycled asphalt pavement which produces little dust.

44. To control fugitive dust emissions, Pike will employ mobile dust collectors during drilling operations, wet suppression at the crushing plant, chemical suppression, washing, paving, and covers on trucks.

45. The crusher will be equipped with the current state-of-the-art dust suppression system.

46. Residents along McGlynn/McLeod Roads may occasionally be able to see dust rising from the Project.

47. Dust is regulated through visible emission limits, rather than particulate limits. Under APCD Regulation 5-211(2), "No person shall cause, suffer, allow or permit the *emission* of any visible air contaminant . . . for more than a period or periods aggregating six (6) minutes in any hour, which has a shade, or density, greater than 20% *opacity* (No. 1 of the *Ringelmann Chart*). At no time shall the visible *air* contaminants have a shade, density, or appearance greater than 60% *opacity* (No. 3 of the *Ringelmann Chart*)."

48. It is rare for quarry operations to even be tested for opacity levels, especially those that use wet suppression, as opacity issues generally pertain to industries involving combustion (black smoke). Nevertheless, the Project will comply with these shade, density, and appearance restrictions.

Crystalline silica

49. Only one regulated Hazardous Air Contaminant (HACs) – crystalline silica – will exceed the action level set under APCD regulations for hazardous air contaminants.

50. Crystalline silica can, in high concentrations, cause silicosis.

51. Pike is required to utilize mitigation measures to meet the APCD's Hazardous Most Stringent Emission Rate (APCD Regulation 5-231(4)). These standards are set at levels that will, by a large margin, avoid adverse health effects from crystalline silica.

52. Pike has proposed mitigation measures to achieve the lowest possible emission rate (the Hazardous Most Stringent Emission Rate (HMSEER)) for crystalline silica. With these measures, Pike will meet these standards.

Other pollutants

53. APCD regulations do not require an evaluation of highway air emissions by Pike's trucks; the regulations focus only on air pollutants generated at the quarry site.

54. All other pollutants fall below air dispersion modeling thresholds, and thus do not trigger review under the APCD regulations.

C. Criterion 2

55. The Project requires approximately 150 gallons of potable water per day.

56. Pike will drill a well near the proposed office to supply potable water. The yield for wells already on the site exceeds 150 gallons of water per day.

57. The Project also uses water for aggregate processing and dust suppression.

58. Water for operational uses will be provided by a series of constructed settling ponds and reservoirs.

59. The proposed stormwater settling ponds will use collected and treated stormwater as a primary water source. The water is recycled during operations through a stormwater pump station.

60. Upper ponds serve as reservoirs to supply operations and dust suppression.

61. The ponds and reservoirs will store approximately 6.5 million gallons of water.

62. The quarry, when washing aggregate, will use approximately 600,000 gallons of water per day.

63. The quarry will recycle approximately 75 percent of the process water.

64. Additional water will be collected from the groundwater flow and overland flow into the quarry.

65. As modeled under Criterion 3, the combined average flow at the west end of the quarry will be an average annual total in excess of 43 million gallons for replenishing the storage ponds.

D. Criterion 3

Geology of the site

66. The geology of the proposed quarry site consists of lower Devonian-aged quartz biotite schist of the Gile Mountain Formation.

67. In the metamorphic bedrock terrain at this site, groundwater flows through rock fractures that trend in various directions, but primarily trend in a north-to-south alignment.

68. The rock is generally found to be massive bedded, relatively uniform, lacking large voids, fault lines, or expanded bedding planes.

69. The geologic studies show the general northeast-to-southwest orientation of the water-bearing fractures in the rock. Fracture trace analysis shows the predominant northeast-to-southwest alignment of the fracture traces. Fracture traces shown on the map intersect the quarry, indicating that these features will direct flow into the open quarry. This means that flow in the bedrock aquifer (into which the quarry will be excavated) will tend to run primarily in a northeast or southwest direction when the quarry is excavated. Additionally, the fracture trace analysis shows a lesser frequency of east-to-west fracture traces, so flow also occurs from east to west, which is the general direction of the ground surface slope.

The quarry excavation

70. The proposed quarry measures 30 acres in area, and will be excavated to a maximum depth of 165 feet below the groundwater surface elevation.

71. In a bedrock flow system, water will flow through fractures to the lowest-head point in that system, which in this case will be the floor of the quarry.

72. Groundwater flowing into the quarry may cause the quarry to act as a cone of depression; groundwater from all directions surrounding the quarry could be drawn into this cone, lowering water levels in the aquifer.

Neighboring residential wells

73. In the vicinity of the proposed quarry, nearby residences rely upon drilled bedrock wells for their household water needs.

74. Domestic wells for the Jalbert and Cafarelli residences are located south of the proposed quarry site.

75. Residential wells in the McLeod/McGlynn Road area are as close as 550 feet to the quarry. These include wells at the Semprebou, Gregoire, and Ducharme residences.

Hydrogeology and pump tests

76. Because the quarry will be excavated into the same bedrock formation into which the wells are drilled, the quarry may affect surrounding wells.

77. Low rock porosity leads to a high water table.

78. After a heavy rainstorm, the aquifer will show replenishment from surface water in a few hours.

79. Wells receive water from both surface water and groundwater.

80. Recharge would be faster with a larger recapture area.

81. Pump tests can be used to lower water levels to simulate the situation that will exist when the quarry has been excavated.

82. Pump testing data provides a basis for predictive calculations to determine the long-term effects of the proposed quarry.

83. Based on the rate and magnitude of the effects to water levels in various wells, properties of the aquifer can be measured and used to estimate the likely area which may be influenced by the quarry.

84. Measurements taken prior to the start of the pumping test indicate the normal static water levels in the wells, i.e., the water level when it is not affected by the well's own pump. When a test involves wells that are in use, it is essential to discern the true static level of a well from the effects of that well's own pump.

85. Measurements during a test show whether a well's static water level drops in response to the pumping or not. Recovery measurements immediately after the pumping confirm whether a well has been affected because static water levels in an affected well will immediately rebound. Rebound will not occur immediately in a well that is not affected by the test pump, indicating that the drop in water level in that well is caused by other reasons (i.e. natural drying conditions).

Test wells at the quarry

86. Pike had previously drilled a test pumping well, TB-4. Pike deepened two existing wells, TB-4 and TB-5, and drilled three new wells, TB-7, TB-8 and TB-9. Two coreholes, TB-1, TB-2 and well TB-3, are also on the site.

87. Pike's experts conducted a constant rate aquifer test in September 2004.

88. TB-4, which was located within the proposed quarry, served as the pumping well.

The pump test

89. The pump test conducted by Pike in September 2004 consisted of pumping well TB-4 for four days, while monitoring water levels in other wells that were located within and also outside of the quarry site.

90. Dataloggers were installed in observation wells TB-3, TB-5, TB-6, TB-7, TB-8, TB-9 as well as in bedrock coreholes TB-1 and TB-2,

91. For the aquifer test, dataloggers were also installed in the wells of five residences – Jalbert, Semprebon, Gregoire, Ducharme and Cafarelli.

92. Background groundwater elevation data were collected before and after the test pumping. The active pumping period of the aquifer test ran for approximately 98 hours.

93. For the aquifer test, combined groundwater level hydrographs for both the drawdown and recovery phases were developed for all monitoring points.

94. On site monitoring points with pump induced drawdown included TB-4, TB-5, TB-7, TB-8, and TB-9.

95. Monitoring wells west of the pumping well did not show any drawdown.

The effect of the pump test on neighboring residential wells

96. Based on an analysis of the on-site monitoring wells, the point of “little influence” or “no impact” around pumping well TB-4 is approximately 700 feet.

97. All of the residential wells except Cafarelli showed statistically significant increased pump use during the aquifer test.

98. Effects on groundwater elevation in the residential wells during the aquifer test may have been due to the increased residential pump use and not to the test pumping well.

99. Pike agrees to supply alternate water sources if the residential wells are impaired by quarry activities.

Flow net / Semprebon well

100. To evaluate the hydrogeologic regime at full quarry development, Pike’s experts modeled a flow net for the site.

101. The net construction suggests that the aquifer is approximately 145 feet thick.
102. From the flow net analysis, any decrease in the thickness of the aquifer suggests that the mining will extend below the aquifer into dry rock.
103. The eastern wall of the quarry will have a high seepage face.
104. The Semprebon well is located upgradient of the quarry wall.
105. The Semprebon well is within the quarry's zone of influence.
106. Based on the flow net analysis, the Semprebon well could experience up to 5 feet of head loss due to quarry development at full buildout.
107. The Semprebon well is 235 feet deep. The well routinely has over 220 feet of water available as storage in the well. This constitutes approximately 330 gallons of water in a 6-inch diameter residential well pipe.
108. A residential well needs 75 to 100 gallons per individual per day.
109. The Semprebon well can be characterized as a well which "recovers fully and rapidly."
110. The most likely time that the Semprebon well would be affected by the quarry would be mid-summer in a time of drought.

Monitoring

111. The only way to determine whether or not changes to neighboring wells are the result of quarry activities is to engage in periodic monitoring of such wells as the quarry progresses.
112. Pike has agreed to periodic monitoring of adjacent wells.

E. Criterion 5

Traffic Volumes

113. The majority of the aggregate material will be hauled to the Pike's asphalt production facility off Vermont Route 62 in the Town of Berlin.

114. Aggregate material will be available for retail and wholesale sales to other persons for deliveries throughout the region.

115. Pike has proposed phasing the project by producing a maximum 100,000 tons of aggregate in Year One; 200,000 ton of aggregate in Year Two; and 300,000 tons of aggregate in Years Three through Twenty-five.

116. After full operation, Pike has proposed a maximum of 360 trucks per day and 40 trips per hour set on quarry operations. These maximums were used in all of the level of service or intersection analyses.

117. The maximum trucks per day is not the average number of trucks per day. The average number will vary depending on a number of factors including time of day, time of year, weather and economic demand for processed aggregate in central Vermont.

118. Pike estimated the average daily truck distribution by a study of a similar Pike facility in Websterville, Vermont.

119. Based on the data from the Websterville facility, the average truck distribution was between 20 and 27 trucks per hour depending upon whether the average is computed over a 9 or 12 hour day for the period of May 1 to November 1. Trucking is significantly lower in the off season.

120. The average truck distribution was further broken down into three categories. At the peak hourly average, trucks consisted of 40% Pike trucks, 40% trucks of others, and 20% non-hauling trucks.

121. A significant portion of the aggregate will be used to supply the asphalt production facility at Pike's Berlin plant which is currently being supplied aggregate by the Websterville facility.

122. Most of the trucks from the proposed facility will exit from the site onto VT Route 14 northbound. The vehicles will turn left onto VT Route 63 westbound and proceed via Interstate 89 and Route 62 east, to Pike's plant in Berlin, Vermont. Returning trucks will follow the reverse procedure.

123. The traffic pattern from the Project site indicates that the maximum hourly truck rate will not correspond to the peak hour traffic. Historical data from the Websterville facility suggest that p.m. truck traffic from the site will be minimal.

124. Of the traffic exiting the proposed Project, approximately 4% will turn south onto Route 14 and 96% will turn north onto Route 14. Of the traffic turning north onto Route 14, approximately 83% will turn westbound onto Route 63 at the Route 14/63 intersection.

125. The proposed Project traffic represents an increase of approximately 6% in average daily traffic on Route 14 from the Williamstown town line to Route 63. Based upon 2005 and 2006 design hour volumes on Route 14, there is adequate capacity to accommodate Project traffic.

Route 14/63 Intersection

126. Level of service at the Routes 14/63 intersection is presently operating at an acceptable level of service.

127. Route 14 around the intersection with Route 63 is a high accident location. Traffic from the Project will likely exacerbate existing problems.

128. Including the traffic generated from the Project, traffic at the intersection will continue to show an overall level of service B for 2005 (afternoon) and a level of service B for 2010 during the afternoon peak hour. The additional trucks from the Project do not significantly affect the level of service or delays at this intersection.

129. The existing geometry at the Routes 14/63 intersection does not include north and south bound exclusive left turn lanes.

130. The Agency of Transportation (VTrans) plans to add north and south bound exclusive left turn lanes for the Routes 14/63 intersection at some point in the near future. Traffic from the Project will significantly accelerate the need to add these left turn lanes.

131. Pike has prepared a plan under the direction and control of VTrans and approved by VTrans to add left turn lanes and other improvements to the intersection prior to the transport of aggregate from the quarry.

132. Pike has agreed to construct the improvements to the Routes 14/63 intersection.

133. VTrans issued a revised letter of intent for the Project on February 4, 2005, which includes the agreement reached by Pike and VTrans concerning the Routes 14/63 intersection.

134. VTrans has considered building a frontage road near the intersection for many years before this Project was proposed.

135. The left turn lanes on Route 14 will cure any unreasonable congestion or unsafe conditions related to the Project.

Project Access

136. Access to the site will be exclusively through a haul road already used by trucks carrying gravel and sand.

137. The Project will share an existing access onto Route 14. The posted speed at the access is 50 m.p.h., transitioning to a 40 m.p.h. zone in the northerly direction. The access will be paved and re-graded to comply with VTrans B-71 standards that require the first 20 feet of driveway to have a slope of less than 3%. An arrestor bed will be added for truck safety.

138. There have been no recorded accidents reported at the access location based on the five year crash summary.

139. VTrans has developed standards for adequate sight distance with respect to commercial driveways. These standards are contained in Standard B-71. These standards specify a minimum stopping sight distance of 400 feet and a corner or intersection sight distance of 550 feet for a posted speed of 50 m.p.h.

140. The 85% percentile speed for this location was approximately 50 m.p.h.

141. Available sight distance to the north and south of the quarry entrance exceeds 550 feet. The distance is 610 feet to the north and 750 feet to the south with minimal tree clearing.

142. VTrans has authorized access onto Vermont Route 14 in accordance with a revised letter of intent dated February 4, 2005. Pike has agreed to install advanced warning signage indicating trucks entering and exiting. These signs will be supplemented by yellow flashing beacons located north and south of the drive entrance. The signs will conform to applicable standards and will be approved by the Vermont Transportation Traffic Operation Section prior to being installed and will function only when "hauling operations" are taking place.

143. The traffic from the Project will not create or exacerbate any other areas of unreasonable congestion or unsafe conditions on any other road other than the Route 14 and 63 intersection.

F. Criterion 8

Context of Area

144. The Project is proposed for a 90 acre tract. The Project site is largely characterized by rolling fields with forested areas located on the southern and western portions. The forests are mixtures of mature hemlock, spruce, cedar and maple.

145. The tract is on the eastern flank of the Stevens Branch river valley. The tract is situated approximately half way up the flank and rises in elevation from 950' to 1,180'.

146. Approximately one-third of the tract will be left undisturbed.

147. The Project site is bordered on the west by existing gravel and sand pits. These pits are significantly smaller than the Project. In addition to the sand and gravel pits, the Rock of Ages quarries are less than two miles north of the Project.

148. The Rock of Ages quarries, although large in scope and historical significance, are not a predominant landscape feature for the residents to the east of the Project.

149. The residents near McGlynn Road have sweeping views of a large gently sloping meadow and mountains to the west. The meadow is a dominant feature of a dramatic view. From this vantage point, the Rock of Ages quarries and the existing sand and gravel pits are not visible.

150. Approximately 12 residences near the Project have views of the meadow.

Noise Context of the Project

151. The residents near McGlynn Road live in a quiet residential area. A background hum of traffic can be heard in the distance. There is little traffic on McGlynn Road and few jarring or impulsive noises. No noise was perceptible from any nearby sand, gravel, or other earth extraction activities.

152. The area near Route 14 is noisy due to the constant traffic on the road. Loud trucks regularly pass by.

153. Across Stevens Branch along the western ridge, there was no noise perceptible from any earth extraction activities, including the sand and gravel pits located near the Project. Traffic on Route 14 could clearly be heard in the distance.

Projects fit to the Context of the Area

Visual Fit

154. The operational areas of the Project are screened from most near and some long distant views.

155. The Project will be mostly unseen from publicly traveled roads. The Project is not visible from anywhere along Route 14.

156. Long distance views of the Project are visible from residences on the western ridge across Stevens Branch. Portions of the Project will be screened by trees on the properties of those residences.

157. A pronounced ridgeline currently screens the existing gravel and sand pits from adjacent residences on McGlynn Road. If this ridgeline is maintained, the

Project will not be visible to residents along McGlynn Road. If the current ridgeline is excavated and a new ridgeline is created towards McGlynn Road as Pike proposed, some residents will be able to see the Project.

158. Pike plans on constructing a berm as depicted in Pike's Site Plan (Exhibit 1). While the berm will alter the view from McGlynn Road, it will create a visual barrier that further mitigates the Project's impacts and blocks views of the Project at McGlynn Road residences.

159. Pike has proposed landscaping to screen the quarry from nearby residents. Some plantings will be on and around the berm. Pike will maintain the landscaping and replace any dead or diseased vegetation.

160. Pike will plant over 800 trees and shrubs to maintain views, mitigate visual impacts from McGlynn Road, and preserve the character of the area.

161. Landscaping has been designed to screen site operations, crusher, and the quarry floor and walls.

162. A 900 square foot office will be constructed near the crusher area. It will not be visible from anywhere off the Project site.

163. The crusher will be screened from view by siting and landscaping. It will not be visible from anywhere off the Project site.

Noise Fit

164. Equipment on the site will include a haul truck, loaders, a crusher and associated screening units and conveyors, water truck, drill and miscellaneous equipment.

165. On-site drilling, blasting and crushing operations will take place annually during the period from April 15 to November 15, Monday through Friday, between 7 a.m. and 5 p.m. – with blasting limited to Monday through Friday, 9 a.m. to 3 p.m. No drilling, blasting or crushing will occur on weekends.

166. Sound is measured in units called decibels (dB). The range of audible sounds are compressed into a logarithmic scale.

167. Logarithmic scales are not additive. That is, the combination of two 70 dB noise sources does not result in 140 dB; rather, the result is approximately 73 dB. Sound level meters are often equipped to give weight (A, B, and C) to sounds of differing frequencies. Noise generated by traffic on highways is measured with "A" weighted decibels (dBA). The human ear can only perceive a difference in a minimum of 3 dBA.

168. L_{max} is the maximum instantaneous sound level measured.

169. An operational quarry generates noise from sources such as rock crushers, rock drills, blasting, moving trucks. These sources generate loud sounds that do not blend in with any natural environment. Examples of instantaneous noises that may originate from a quarry are the noises generated by dropping, crushing, blasting, moving, and drilling rock.

170. The expected noise from the Project is markedly different than the existing context near McGlynn Road. The sounds that will be generated by the Project will be impulsive and more like industrial sounds than anything now part of the background of the area. The noises will be harsh and intermittent, unlike the usual sounds experienced in a rural setting and not merely louder versions of the same noises already present.

171. Pike used the Computer Aided Noise Abatement (CADNA A) computer model to predict noise levels. The CADNA A model predicts the dBA at receptor sites after considering the noise generating sources, topography, and other acoustical mitigating factors such as foliage and ground absorption.

172. Pike ran a series of CADNA A modeling each time modifying either the equipment used or the inputs. Each successive run of the CADNA A model predicted slightly lower decibel readings. The most dramatic reduction occurred when Pike modeled the "down the hole" drill instead of a standard drill.

173. With use of a "down-the-hole" drill and noise suppression walls, Pike's final CADNA modeling predicted that the quarry can meet a standard of 55dBA L_{max} at any adjacent residences and 70 dBA L_{max} at the property line.

174. With use of a "down-the-hole" drill and noise suppression walls, the highest L_{max} at any residence will be 51 dBA. This level will occur only under the worst conditions used in the model.

175. The noise will also diminish as Pike's quarry holes become deeper because the lower face will act as a noise buffer.

Undue Adverse Affect

Shocking and Offensive

176. The impulsive and industrial nature of some of the noise from the Project may be startling to residents near McGlynn Road. In general, the noise from the Project will be clearly audible for residents surrounding the Project, but it will not be so loud as to disrupt daily life.

177. There will be a vegetated buffer surrounding the operational areas of the quarry. If the upper meadow near McGlynn Road is maintained, adjacent property owners are at least several hundred feet away from the nearest operational area.

Mitigation

178. The quarry will be developed as 6 Cells. The aggregate expected in each Cell is as follows: Operations area – 280,000 tons; Cell 1 – 820,000 tons; Cell 2 – 1,300,000 tons; Cell 3 – 1,500,000 tons; Cell 4 – 1,900,000 tons; Cell 5 – 2,000,000 tons; Cell 6 – 1,600,000 tons.

179. Maintaining a portion of the meadow as an open field east of the berm with the existing ridgeline will essentially preserve the same view from McGlynn Road that exists today. Pike will at a minimum brush hog the remaining meadow annually.

180. All of the site work can be accomplished in approximately twelve weeks or less.

181. No equipment will use McGlynn Road during construction.

182. Stump disposal will be done so that any settling is minimized.

183. Pike will use the following noise mitigation measures for its quarry operations:

- Limit hours of the drilling, blasting, crushing, and screening to non-holiday weekdays during normal business hours.
- Further limit blasting hours to 9:00 a.m. to 3:00 p.m., except for emergencies.
- Limit blast noise through the use of delays, as appropriate.
- Notify any requesting neighbor by telephone of the dates and times of blasts.
- Provide any requesting neighbor with the name and number of a site supervisor for any complaints.
- Maintain a quarry face that faces away from neighbors to the extent possible.
- Store overburden and topsoil between neighbors and quarry operations, to the extent feasible, to act as further noise reduction barrier.
- Install radar-activated backup alarms on all quarry equipment to the extent allowed by the Mine Safety and Health Administration (MSHA).
- Whenever possible utilize one-way circulation for outside dump trucks to minimize the use of backup alarms.
- Install mufflers that meet European noise standards, where available, on excavators, loaders and on-site haul trucks.
- Maintain mufflers and other sound control devices on all equipment on a regular basis.
- Operate the crusher inside a topographic depression.
- To the extent possible, stockpile raw materials such that crushing/screening is done in the shortest time possible.
- Use portable barriers as necessary to meet the noise standards during surface quarry operations.

- Minimize the use of exposed detonating cord, and if used, cover exposed cord with soil, sand, or stemming material.
- Use a “down-the-hole” drill for surface drilling and drilling close to the adjacent residences.

G. Criterion 9(E)

Ducharme’s business

184. Pierre Ducharme runs a business which provides metal parts and tools to the granite industry.

185. The easternmost edge of the excavated portion of the quarry site is 550 feet from Ducharme’s shop.

186. Ducharme’s equipment must be properly leveled to 0.0005 inches over ten inches.

187. A portion of the floor of Ducharme’s shop is concrete placed on ledge.

188. If blasting were to disturb the level of Ducharme’s equipment, releveling could take six to seven hours.

Blasting at the quarry

189. Blasting will occur by drilling holes to depth, inserting explosives, and applying a cover of inert material in order to reduce the noise and contain the energy.

190. Blastholes will be 3.5 inches in diameter with a maximum depth of 50 feet, once the full bench height has been reached.

191. The maximum charge weight per blasthole will be approximately 292 lbs.

192. As the excavated portion of the quarry moves closer to its neighbors to the east, the charge weight will be decreased.

193. Blasting will be performed only during the hours between 9:00 am and 3:00 pm, except for emergencies. Once the quarry is established, one production shot (blast) will occur every eight to ten working days, or about ten to fifteen times each operating season. More frequent development blasting (at 22 pounds) will occur in the initial development stages of the quarry.

194. It may take up to four days to drill each production hole, depending on the topography, the drill and the hardness of the rock.

195. Each blasting event will last about one second, once the bench is established.

196. Blasting explosives will not be stored on the site.

197. Pike will contract with a qualified blasting professional to conduct all blasting at the Project.

Pike's blast design

198. Pike has submitted a blast design for the quarry. The design is intended to minimize both Peak Particle Velocity (ground velocity) and airblasts in order to prevent damage and lessen annoyances at neighboring properties.

199. Particle velocity depends in part on the density of the rock; the denser the rock the better it propagates vibrations.

200. Under the design, the maximum Peak Particle Velocity (PPV) at any neighboring residence will be less than 1 in/sec. Should it be greater than that, the blasting design will be changed, first by reducing the pounds per delay.

201. Blast designs will use appropriate delays to control both ground vibration and airblast.

202. Where possible, quarry faces and blast patterns will be oriented in such a way as to minimize ground vibration and airblast.

203. Laser profilers and bore track equipment will be used where necessary to control blasthole deviation.

Formula and variables to determine the impacts of blasting on Ducharme's business

204. There is a formula for determining the amount of ground vibrations at Ducharme's business based upon the size of the blasts, blasting frequencies (10 – 50 Hz), the bedrock's ability to transmit vibrations (assuming a propagation velocity of 8000 ft/sec based on the schist present at the Project site), and the distance between the quarry and Ducharme's shop.

205. No studies or analyses were performed of the bedrock at the Project site. In order to design conservatively, however, Pike has assumed that there is a ledge connecting the quarry site and the Ducharme property.

206. It is the amplitude of the wavelengths that are of the most concern in terms of effects on Ducharme's equipment.

207. The amount of explosive used and the distance between the blastholes and the receptor have more of a bearing on amplitude than the type of rock between the two sites. At the distances between the blastholes and the neighboring properties the type of rock at the site will make little difference in terms of vibrations.

208. Accepting a maximum rate deflection at the Ducharme machine shop of less than 0.0005 inches over ten inches, the formula indicates that no displacement of Ducharme's equipment will occur if PPV is below 7.53 in/sec.

209. Based on the blast plan and the distance to the Ducharme machine shop, particle velocities at the site of the Ducharme shop are predicted to be less than 0.5 in/sec.

210. Even assuming a faster propagation velocity of 3000 ft/sec, vibrations at the Ducharme business would still be below a particle velocity of 7.53 in/sec.

Monitoring and warning of blasts

211. Seismographs will be used to monitor all blasts. Seismographs are typically used to measure PPV and monitor blasts.

212. Ducharme's expert recommended using tiltmeters to measure any deflection over time at the Ducharme machine shop floor. He was not aware, however, of any instance where a tiltmeter was used to monitor vibration from blasting.

213. Seismographs capture the effects of vibrations better than tiltmeters.

214. Neighbors will be notified prior to blasting.

215. If seismographs indicate a PPV exceeding 7.53 in/sec, blasting will be adjusted to eliminate such excess.

Reclamation

216. Pike has filed an acceptable reclamation plan.⁴

217. Pike will reclaim each cell as it is completed, with the exception of the haul roads, which must be used for later cells.

218. The bench areas on the north and south walls of the quarry will be reclaimed as each cell is closed and the quarry excavation moves to the east.

H. Criterion 9(K) – Adjacent Public Facilities

219. Public roads are the only adjacent public facilities.

I. Criterion 10

220. The August 16, 1999 Williamstown Town Plan governs the Project.

221. The Project is located in the Town Plan's Industrial District, the Agricultural District and the Rural Resource Recreational Residential Districts.

⁴ The Board takes official notice of the reclamation plan filed with the Commission. 3 V.S.A. §810(4).

Relevant Town Plan provisions

222. The Williamstown Town Plan identifies the following Objectives and Principles:

II. OBJECTIVES AND PRINCIPLES

The purpose of this Plan is to guide the development of the Town in the best interests of all residents.

1. To make the best use of all of Williamstown's land by giving special attention to the natural conditions of each area. The Plan proposes a flexible pattern of development based upon density of land use related to the location, highway system, land and soil conditions, and the general character of each area.

2. To preserve as much open land as possible and to encourage the best use of that land. The plan recognizes the importance of encouraging the most suitable and productive uses of open land for agriculture, forestry, conservation, recreation, or similar activity by using tax policy or other economic preferment.

223. Section III of the Williamstown Town Plan includes the following definitions:

"Extraction of Earth Resources" means the extraction of earth resources such as topsoil, sand, gravel, crushed rock, marble, slate, granite and talc within the Agricultural, RRRR, Commercial and Industrial Districts provided:...

(C) that in any new operation outside of the Industrial District, the area excavated does not exceed five (5) acres (217,800 square feet) at any one time. Smaller areas may be designated if necessary to protect the character of the neighborhood where the operation is located;

(H) any such project is designed and proposed so as to mitigate

any negative impact upon neighboring properties including, but not limited to, noise, dust, water supplies, water drainage, traffic, and sewage disposal systems.

"Heavy Industrial" uses mean those enterprises which:

(A) engage in basic processing and manufacturing of materials or products predominantly from extracted or raw materials;

(B) engage in storage of, or manufacturing processes using flammable or explosive materials.

"Light Industrial" uses mean those enterprises which:

(A) manufacture, repair, or assemble products or provide services within the confines of the buildings;

(B) dispose of no waste, except human septage, on the premises; and

(C) cause no undue air, noise, or water pollution.

224. Section IV of the Williamstown Town Plan establishes the following districts:

5. *Industrial District*

An Industrial District is established. These areas, noted for their access and isolation from most other uses, are considered suitable for industrial uses. Light industrial uses are encouraged in this District, and heavy industrial use may be permitted when regulated to meet acceptable performance standards. Any regulation should take into account the type of waste generated. Extraction of earth resources is permitted.

6. *Agricultural District*

An agricultural district is established. This district is scattered throughout the Town and is characterized mostly by gentle sloping cropland. There are some areas nearly flat and others more steeply sloped. These open meadows support Williamstown's working farms. Only a small fraction would meet the State's standard of "prime agricultural land." It is the purpose of this District to preserve and protect these working farmlands.

All types of agricultural uses shall be permitted as a matter of right. Residential use, seasonal dwellings, light industrial use of farm buildings, Country Inns, and the extraction of earth resources are permitted. All other industrial and commercial uses are prohibited.

7. *Rural Resource Recreational Residential District*

... The main consideration shall be the protection of existing residential development.

IV. Conclusions of Law

A. A preliminary statement as to the Conclusions on several of the criteria at issue.

As regards many of the criteria at issue in this case, where the Board has set measurable compliance standards, or such standards exist in other regulations, there are often instances where the evidence presented to the Board cannot, with absolute confidence, support a conclusion that a project will, or will not, comply with Act 250's requirements. In its analysis of many of the criteria, the Board often cannot be certain that a project will satisfy or fail specified standards when completed at some point in the future.

Certainly, there are some cases in which the Board may be able to conclude, based on projections, that a project will not be able to meet such established standards; in those cases, the Board has not hesitated to deny the application. See, e.g., *Re: McLean Enterprises, Inc., #2S1147-1-EB*, Findings of Fact, Conclusions of Law, and Order at 62 and 68 (Nov. 24, 2004).

In other cases, however, credible evidence may be presented to the Board, based upon modeling or other experience, that predicts that a project will be able to meet such requirements. In those circumstances, the Board may reasonably conclude on the evidence before it that the project will comply with a criterion if certain standards are met. The Board may then impose the required standards as conditions of its permit, and the applicant must meet them. The applicant therefore takes the risk that, if its modeling or projections turn out to have been incorrect, its operations may subsequently be shut down or substantially curtailed as being in violation of the standards-based permit conditions.

B. Criterion 1

Before granting a permit, the Board must find that the Project will not result in undue air pollution. *In re Wildlife Wonderland, Inc.*, 133 Vt. 507, 513 (1975); 10 V.S.A. §6086(a)(1). Pike has the burden to demonstrate compliance with Criterion 1. 10 V.S.A. § 6088(a); *In re R.E. Tucker, Inc*, 149 Vt. 551, 558 (1988); and see, *In re Barker Sargent Corp.*, 132 Vt. 42, 46 (1973).

There is no clear definition within Act 250 of what constitutes "undue" pollution; Board precedent is more instructive about what is *not* "undue," than what is. *Re: John J. Flynn Estate and Keystone Development Corp.* #4C0790-2-EB, Findings of Fact, Conclusions of Law, and Order at 17 – 18 (May 4, 2004); *Re: Mark and Pauline Kisiel*, #5W1270-EB, Findings of Fact, Conclusions of Law, and Order at 29 (Aug. 7, 1998), rev'd on other grounds, *In re Kisiel*, 172 Vt. 124 (2000); but see *Re: Brattleboro Chalet Motor Lodge, Inc.*, #4C0581-EB, Findings of Fact, Conclusions of Law, and Order at 6 (Oct. 17, 1984) (defining "undue" as "that which is more than necessary – exceeding what is appropriate or normal.")

Board precedent is also fact-specific; thus, whether a pollutant is "undue" can depend on a series of factors, which may include an analysis of the nature and amount of the pollution, a proposed project's location and topography, prevailing winds, whether the pollutant complies with certain standards or recommended levels, and whether effective measures will be taken to mitigate the pollution.

Noise, fumes, airborne contaminants, and dust are considered to be air pollution under Criterion 1. *Re: City of Montpelier and Ellery E. & Jennifer D. Packard*, #5W0840-6-WFP, Findings of Fact, Conclusions of Law, and Order at 20 - 21 (May 22, 2000); *Re: James E. Hand and John R. Hand, d/b/a Hand Motors and East Dorset Partnership*, #8B0444-6-EB (Revised), Findings of Fact, Conclusions of Law, and

Order at 22 (Aug. 19, 1996)(noise, fumes and dust constitute air pollution).

Noise

Noise is considered air pollution where its occurrence may cause adverse health effects; the test for undue air pollution (noise) is whether the noise has impacts rising above annoyance and aggravation to cause adverse health effects such as hearing damage. *Re: Barre Granite Quarries, LLC and William and Margaret Dyott, #7C1079(Revised)-EB*, Findings of Fact, Conclusions of Law, and Order at 68 (Dec. 8, 2000); *Re: City of Montpelier, supra*, at 21; *Re: Casella Waste Management, Inc., and E.C. Crosby & Sons, Inc., #8B0301-7-WFP*, Findings of Fact, Conclusions of Law, and Order at 27 (May 16, 2000).⁵

The Board relies on EPA standard of 70 dBA for 24 hours/day, 365 days/year in a lifetime for health and safety considerations of noise. *Re: Casella Waste Management, supra*, at 28. Here, no evidence has been presented that noise will exceed applicable health standards.

NOx

The evidence is that neither the Project's on-site nor off-site (trucking) activities will cause relevant NOx standards to be exceeded. The generators for the crushers will operate at levels that do not trigger review under the APCD regulations. Further, emissions from the Project's trucks will not exceed the NAAQs for NOx or other particulates, as regulated by the APCD.

Dust

While Pike has provided no specific evidence demonstrating compliance with this provision, on-site and off-site dust controls which minimize air pollution are effective mitigative measures leading to a conclusion of no undue air pollution. *Re: Barre Granite Quarries, supra*, at 68.

⁵ Thus, noise analysis under Criterion 1 focuses primarily on the health and safety impacts of noise, rather than its welfare impacts, which are considered under Criterion 8. *Re: City of Montpelier, supra*; *Re: Casella Waste Management, supra*, at 28.

Here, the evidence presented to the Board is such that the Board can conclude that Pike will be able to meet APCD requirements for dust. Should Pike fail to meet these standards, its Act 250 or air permit may be revoked.

The Project complies with Criterion 1 (air).

C. Criterion 2

Before issuing a permit, the Board must find that the Project has “sufficient water available for the reasonably foreseeable needs of the subdivision or development.” 10 V.S.A. §6086(a)(2). The burden of proof is on Pike under Criterion 2. 10 V.S.A. §6088(a).

The potable water needs of the Project are quite small. That need can be met by the proposed drilled well.

Aggregate cleaning and dust suppression require a separate water supply. Pike proposes to meet and manage that separate need through a series of settling ponds and reservoirs. The system can store approximately 6.5 million gallons of water. The quarry, when washing aggregate, will use approximately 600,000 gallons of water per day. Approximately 75 percent of that water will be recycled.

Pike will also collect and use the considerable amount of water that will collect on the quarry floor. Pike’s hydrogeology experts estimated that the quarry could experience approximately 43 million gallons of water annually from groundwater, surface water and direct precipitation inputs. This combined amount of water is sufficient for the quarry operations, and no evidence was provided that this was not enough water for the operational activities of the Project.

Based upon the findings of fact, the Board concludes that Pike has sufficient water available for the reasonably foreseeable needs of the Project. The Project complies with Criterion 2.

D. Criterion 3

Before issuing a permit, the Board must find that the Project “[w]ill not cause an unreasonable burden on an existing water supply, if one is to be utilized.” 10 V.S.A. §6086(a)(3). Criterion 3 addresses the “impacts on the ability to meet the demand of

neighboring wells or water sources if those other wells or water sources share the same basic source of water such as an aquifer or common spring.” *Re: McLean Enterprises, Inc., supra; Re: Barre Granite Quarries, supra*, at 73; *Re: MBL Associates, #4C0948-EB Findings of Fact, Conclusions of Law, and Order (Altered)* at 28 (May 2, 1995).

The burden of proof is on the Pike under Criterion 3. 10 V.S.A. §6088(a).

One hundred years ago, a Texas court declared that the movement of groundwater was "so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to [it] would be involved in hopeless uncertainty, and would, therefore, be practically impossible." *Houston & Texas Central Railway Co. v. East*, 81 S.W. 279, 281 (Tex. 1904), quoting *Frazier v. Brown*, 12 Ohio St. 294, 311 (Ohio 1861). While fifty years later the courts had recognized a growing knowledge of groundwater science, *City of Corpus Christi v. City of Pleasanton*, 276 S.W.2d 798, 805-06 (Tex. 1955) (Wilson, J., dissenting), it is apparent today, from the differing viewpoints presented in the expert testimony in this case, that reasonable minds can disagree about the existence, depth and extent of underground fractures and their ability to connect activities at the proposed quarry site to residential wells a thousand feet away on the other side of a stream. Indeed, the only issue that the parties to this case apparently concur is that the Semprebon well will likely experience some impact from the excavation of the quarry; yet even the extent of that impact is the subject of some discussion and disagreement.

The Board is thus left to sift through the various opinions of the experts in order to determine whether the impacts caused by the quarry will, indeed, negatively affect the neighboring residential wells, and, if so, whether those affects will be "unreasonable." The evidence presented to the Board and the findings that the Board is able to make based upon that evidence give the Board sufficient confidence to conclude that it is unlikely that the operations of the quarry will result in an unreasonable burden on existing water supplies in the quarry's neighborhood.

This conclusion is, however, tempered by caution, and we turn, therefore, to the approach that we presented in our general discussion above: the evidence indicates that existing water supplies will not suffer unreasonable burdens. But this is not a statement that can be made with absolute certainty. Thus, we will find positively on this Criterion, but with the awareness that future experience, as the quarry is excavated, may ultimately prove this finding to be inaccurate. We therefore adopt the solution that we fashioned in our consideration of Criterion 3 in the *Re: Barre Granite Quarries* case:

However, since operations at the Quarry at least have the possibility of resulting in a minor level of source interference at these properties, the Permittees hired an independent consultant to do baseline yield and water quality data from each of the nine wells.

Further, in the event that an unacceptable level of source interference is experienced at any of the water supply source locations, not under prior agreement with the Permittees, the following measures will be implemented by the Permittees at its own cost and expense in order to rectify any source interference problems: (1) in the event that the existing affected groundwater supply is a drilled well, the well will be deepened by re-drilling with additional improvements made to the well pump size and configuration as required; (2) if the above method is unsuccessful, a replacement bedrock well water supply will be drilled on the individual properties; and, (3) to the extent necessary, additional potable water storage would be installed to service the affected properties experiencing a reduction in source yield due to interference. As demonstrated in the bedrock fracture trace analysis, there is a high potential for locating replacement well sites on each of the affected properties.

The Board defines “unacceptable level of source interference” on an existing water supply to be the same as the definition of “unacceptable interference” in Section 11.6.3.1 of the State of Vermont Environmental Protection Rules, Chapter 21: Vermont Water Supply Rule. The Rule states as follows:

Public and private water supplies affected by the pumping of other proposed or existing groundwater sources shall be able to meet their average day demand while the proposed water supply is operated at the proposed pumping rates. If, as a result of predicted source interference, existing water supplies cannot meet their design demands, then unacceptable interference exists.

Unacceptable interference may also include water quality problems resulting from source testing.

Based upon Findings of Fact, the Board concludes that the Quarry operations will not cause an unreasonable burden on any existing water supplies.

Consistent with *Re: Barre Granite Quarries*, we will conclude that the Project complies with Criterion 3, but require, as a condition to approval under that Criterion, that Pike monitor water quantity (volume) and quality.

Monitoring of the residential wells at the properties presently owned by the Jalberts, Semprebons, Gregoires, Ducharmes and Cafarellis shall occur:

1. before any activity at the quarry commences, in order to obtain baseline levels for future comparison purposes; and
2. once each year at the end of summer.

The results from such monitoring shall be filed with the Commission; monitoring results from an individual residential well shall also be given to the owner of such well, but Pike need not provide the monitoring results of an individual residential well to others.

Should the residential wells presently owned by the Jalberts, Semprebons, Gregoires, Ducharmes and Cafarellis indicate adverse impacts attributable to the quarry which rise to the level of an “unacceptable level of source interference” as defined above, the Commission shall retain jurisdiction and authority to require Pike to take appropriate mitigative actions, including but not limited to providing bottled water to and drilling deeper wells for the affected residences.

E. Criteria 5 and 9(K)

Before issuing a permit, the Board must find that the proposed Project, “[w]ill not cause unreasonable congestion or unsafe conditions with respect to the use of highways...” 10 V.S.A. §6086(a)(5)(traffic). A permit may not be denied solely on the basis of Criterion 5, but the Board may attach reasonable conditions and requirements to the permit to alleviate the burden created. 10 V.S.A. §6087(b). The burden of proof is on the ROQIN parties under Criterion 5, 10 V.S.A. §6088(b), but Pike must provide sufficient information for the Board to make affirmative findings.

Traffic Volume

The Project will not significantly increase the traffic on Route 14. The route is already heavily traveled by trucks and, at full operation, the Project traffic will only

increase volume by 6 percent. Further, that traffic will occur only at certain times of the day, certain days of the week, and certain months of the year. Pike has proposed a maximum of 40 trips per hour, but the actual number is expected to be between 20 and 27 trips based on the hours of operation. In the off season, truck traffic will be much lower, at some times, none at all.

The Project traffic has several significant characteristics. Most of the truck traffic from the site will travel northbound on Route 14 and turn left onto Route 63 to Pike's plant in Berlin, Vermont. Further, this truck traffic already exists. The current traffic is from Pike's Websterville, Vermont quarry and travels through the center of Barre City. The proposed Project will replace the Websterville quarry.

The Project traffic represents only a 6% increase in average traffic on Route 14. There is adequate capacity on the road for that increase. The level of service at the Routes 14/63 intersection is presently operating at an acceptable level of service but it has been a high accident location. Although the intersection will still operate at an acceptable level of service even with the Project's traffic, given the increased truck movements making left turns at a high accident location, additional mitigation measures are required.

The intersection at Routes 14/63 should be upgraded to include exclusive left turn lanes in both the northbound and southbound directions. Pike has agreed with VTrans to fund the improvements to the intersection before Pike starts transporting aggregate from the Project. This improvement will make the intersection both safer and more efficient.

VTrans also wants to add a frontage road at the intersection and through a separate agreement Pike has agreed to provide the paving material for that improvement when it takes place. However, the Board finds that the frontage has been a long term desire of VTrans and is not part of this permit.⁶

Project Access

The existing curbcut location complies with current VTrans standards for corner and stopping sight distances. Pike has agreed to clear some trees south of the

⁶ Of course, Pike and VTrans were free to negotiate any agreements that were necessary to reach consensus on the issues properly within the scope of this permit.

Project access on Route 14. After that clearing, the available sight distance will be increased to the south an additional 150' over that presently existing.

VTrans has authorized access onto Route 14 for the Project and has approved additional signage and warning lights for the road.

Other Improvements

The Town of Barre requested certain improvements to the Route 63/Miller Road intersection. The Board finds that the Project's traffic will not result in unreasonable congestion or unsafe conditions at the Route 63/Miller Road intersection and does not require any additional measures. The parties have agreed to additional safety measures but they are not required by this permit. Based on the findings of fact and the additional mitigation measures that Pike will undertake, the Board concludes that this Project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways.⁷

F. Criterion 8

Under Criterion 8, before issuing a permit, the Board must find that the proposed Project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare or irreplaceable natural areas. 10 V.S.A. §6086(a)(8). In this case there was no contention that the Project will impact historic sites or rare or irreplaceable natural areas. Therefore, the Board will not consider those components of Criterion 8.

The burden of proof under Criterion 8 is on the ROQIN parties as opponents to the Project, 10 V.S.A. §6088(b), but Pike must provide sufficient information for the Board to make affirmative findings. See, *Re: Southwestern Vermont Health Care Corp., #8B0537-EB*, Findings of Fact, Conclusions of Law, and Order at 28 (Feb. 22, 2001).

The Board relies upon a two-part test to determine whether a project satisfies Criterion 8. First, it determines whether the project will have an adverse affect under

⁷ Again, the parties are allowed to negotiate agreements beyond the scope of Act 250 in order to reach consensus on Act 250 issues. These ancillary matters, however, remain independent matters of contract and are not incorporated as part of the Act 250 process itself.

Criterion 8. *Re: James E. Hand, supra*, at 24 – 25, citing *Re: Quechee Lakes Corp., #3W041 1-EB and #3W0439-EB*, Findings of Fact, Conclusions of Law, and Order at 17 -19 (Nov. 4, 1985).

The Board looks to whether a proposed project will be in harmony with its surroundings or, in other words, whether it will ‘fit’ the context within which it will be located. In making this evaluation, the Board examines a number of specific factors, including the nature of the project’s surroundings, the compatibility of the project’s design with those surroundings, the suitability for the project’s context of the colors and materials selected for the project, the locations from which the project can be viewed, and the potential impact of the project on open space.

Re: James E. Hand, supra, at 25, citing, *Re: Quechee Lakes Corp., supra*, at 18.

In other words, if a project ‘fits’ its context, it will not have an adverse affect. *Re: Talon Hill Gun Club and John Swington, #9A0192-2-EB*, Findings of Fact, Conclusions of Law, and Order at 9 (Jun. 7, 1995). If the Board concludes that the Project has an adverse effect under Criterion 8, the Board moves to the second part of the test and evaluates whether the adverse affect is ‘undue’.

Board precedent notes that application of Criterion 8 does not guarantee that views of the landscape will not change:

Criterion 8 was not intended to prevent all change to the landscape of Vermont or to guarantee that the view a person sees from his or her property will remain the same forever. Change must and will come, and Criterion 8 will not be an impediment. Criterion 8 was intended to insure that as development does occur, reasonable consideration will be given to the visual impacts on neighboring landowners, the local community, and on the specific scenic resources of Vermont.

Re: Okemo Mountain Inc., #2W5051-8-EB, Findings of Fact, Conclusions of Law and Order at 9 (Dec.18, 1986); and see, *Re: Main Street Landing Company and City of Burlington, #401068-EB*, Findings of Fact, Conclusions of Law, and Order at 17-18 (Nov. 20, 2001).

While a built environment is not always adverse, projects that result in the loss of open space and the alteration of vistas can have an adverse affect on aesthetics and scenic beauty. *Re: Thomas W Bryant and John P. Skinner, #4C0795-EB*,

Findings of Fact, Conclusions of Law, and Order at 21 (Jun. 26, 1991). See also, *Re: Maple Tree Place Associates, #400775-EB*, Findings of Fact, Conclusions of Law and Order at 48-49 (Jun. 25, 1998); *Re: George, Mary and Rene Boissoneault, #6F0499-EB*, Findings of Fact, Conclusions of Law, and Order at 19 (Jan. 29, 1998).

The context of the Project

The upper hillside of the Project closest to McGlynn Road is part of a beautiful pastoral setting. Beyond the gently sloping meadow there are distant views of the mountains to the west. Several of the parties live in homes accessed off McGlynn Road. There are a couple of home businesses integrated into the neighborhood, but these commercial uses do not detract from the rural residential setting. McGlynn Road is a lightly traveled, rural dirt road.

The lower hillside of the Project nearest Route 14 is noisy because of the traffic on Route 14 and the noise from the adjacent sand and gravel pits that are 11 and 23 acres in size.

The impact of the Project on its context

Assessing the impacts of a project is a fact-specific determination whether the Project's design fits within the context of the surrounding neighborhood. Although the Project may be similar to the sand and gravel pits near Route 14, there is no question that the Project does not fit the context of the scenic and quiet upper hillside and meadow near McGlynn Road. Therefore, the Board concludes that the Project will have an adverse affect under Criterion 8.

Undue Adverse Affect

Since the Board concluded that the Project will have an adverse affect under Criterion 8, the Board must evaluate whether the adverse affect is "undue." The Board will conclude that adverse affect is "undue" if it reaches a positive finding with respect to any one of the following factors:

Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?

Does the Project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

Has the applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings?

Re: *Quechee Lakes Corp.*, *supra*, at 19-20.

Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?

Under this first factor, the Board must determine whether the Project violates a clear, written community standard intended to preserve the aesthetics or scenic beauty applicable to the area in which the Project will be located.

In evaluating whether a project violates a clear written community standard, the Board routinely looks to town plans, open land studies, and other municipal documents to discern whether a clear, written community standard exists and should be applied in the review of the aesthetic impacts of a project. See, *Raymond and Centry Duff*, #5W0952-2-EB, Findings of Fact, Conclusions of Law, and Order at 9 (Jan. 29, 1998); *Re: Herbert and Patricia Clark*, #1R0785-EB, Findings of Fact, Conclusions of Law, and Order at 35 - 37 (Apr. 3, 1997); *Re: Thomas W. Bryant*, *supra*, at 22; and see *Re: Nile and Julie Dupstadt & John and Deborah Alden*, #4C1013-B, Findings of Fact, Conclusions of Law, and Order at 34 (Apr. 30, 1999) (town plan can be an authoritative source of clear community aesthetic standards, and it is therefore appropriate for the Board to rely upon such a Plan "in determining whether [a] Project violates the community standard.")

The Board explained the intent of the clear, written community standard in *Re: Town of Barre*, #5W1167-EB, Findings of Fact, Conclusions of Law, and Order (Jun. 2, 1994):

In adopting the first standard in the *Quechee* analysis, the Board intended to encourage towns to identify scenic resources that the community considered to be of special importance: a wooded shoreline, a high ridge, or a scenic back road, for example. These designations would assist the district commissions and the board in determining the scenic value of specific resources to a town, and would guide applicants as they design their projects.

Id. at 21.

In *Re: Town of Barre*, *supra* at 21, the Board ruled that a clear, written community standard cannot "apply generally to the community at large rather than to specific scenic resources in the project area."

In contrast to *Re: Town of Barre* was the town plan provision at issue in *Re: Taft Corners Associates, #4C0696-11-EB* (Remand), Findings of Fact, Conclusions of Law, and Order (Revised) at 19 (May 5, 1995), where the Board found that the town plan identified as "significant" the views of the mountains to the east and west and foreground views from Interstate 89 of "the high ground at the water tower and other open spaces.... "

There is no clear, written community standard intended to preserve the scenic beauty applicable to the area in which the Project will be located.

Noise

The ROQIN parties argue that the Williamstown Town Plan contains language that sets forth a clear, written community standard intended to preserve the quiet of the area. Specifically, the Town Plan states that the extraction of earth resources is only allowed "provided any such project is designed and proposed so as to mitigate any negative impact upon neighboring property owners including ... noise." They argue that this standard is at least as restrictive as the language that the Board relied upon in *Re: McLean Enterprises* and *Re: Dominic A. Cersosimo and Dominic A. Cersosimo Trustee and Cersosimo Industries, Inc., #2W0813-3-EB*, Findings of Fact, Conclusions of Law, and Order (Revised) at 10 - 16 (Apr. 19, 2001), where the Board imposed a lower dBA Lmax limitation based on language in the Cavendish and Vernon town plans respectively.

In *Re: Dominic A. Cersosimo, supra*, the Vernon Town Plan stated that "[t]he extraction of earth resources should not have an adverse environmental impact resulting in inconvenience to or burden on neighboring property owners nor represent a burden on municipal facilities." In *Re: McLean Enterprises, supra*, the town plan stated that the "extraction of earth resources must not result in a nuisance to neighboring property owners through noise or dust, nor be a burden on public services."

In both of those cases the Board reasoned that if under the standard set in *Re: Barre Granite Quarries, supra*, for Criteria 8 Aesthetics that noise levels above 55 dBA Lmax at any residence or area of frequent human use are offensive and shocking, then restrictions on noise must be established at a level *lower* than 55 dBA Lmax in order to meet the more stringent requirements mandated by an "inconvenience" or "nuisance" test. As a result, in both cases the Board imposed a more restrictive standard of 50 dBA Lmax.

The above provision in the Williamstown town plan applies to a particular area (quarries) and is intended to preserve the aesthetics of the area, therefore, it is

applicable under Criterion 8. However, unlike *Re: McLean Enterprises, Inc.* and *Re: Dominic A. Cersosimo*, it only requires quarry operators to mitigate noise impacts. Thus, the language imposes the same requirements as the mitigation requirement already found in Criterion 8 and discussed below. Therefore, although the language in the Williamstown town plan is applicable under Criterion 8, it does not require the Board to impose a lower dBA Lmax standard.

Does the Project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

Under this second aesthetic factor, the Board must determine whether the Project offends the sensibilities of the average person. This includes whether the Project will be so out of character with its surroundings or so significantly diminish the scenic qualities of the area as to be offensive or shocking to the average person. *Re: Pike Industries, Inc. and William E. Dailey, Inc.*, #1R0807-EB, Findings of Fact, Conclusions of Law, and Order at 18 -19 (Jun. 25, 1998); *Re: Nile and Julie Dupstadt, supra*, at 35; and see, *Re: Robert B. & Deborah J. McShinsky*, #3W0530-EB, Findings of Fact, Conclusions of Law, and Order at 9 (Apr. 21, 1988), *aff'd*, *In re Robert and Deborah McShinsky*, 153 Vt. 586 (1990).

In developing the *Quechee* Standards, the Board emphasized that “certain types of land forms are especially sensitive to change, because these land forms tend to be visible from a wide area or they are seen by large numbers of people. These sensitive areas include ridgelines, steep slopes, shorelines and floodplains.” The Board concluded that special attention should be given “in assessing whether the scenic qualities of these sites will be maintained.” *Re: Quechee Lakes Corp., supra*, at 19.

Scenic and Visual Beauty

Although the threshold is high, the Board has found projects shocking and offensive because the size and scope are so out of character with the surrounding area. *Southwestern Vermont Health Care Corp., supra* at 35-36; *Re: OMYA, inc. and Foster Brothers Farm, inc.*, #9A0107-2EB, Findings of Fact, Conclusions of Law, and Order at 38 (May 25, 1999), *aff'd*, *OMYA Inc. v. Town of Middlebury*, 171 Vt. 532 (2000) (excessive truck traffic through historic village is shocking or offensive); *Re: Lawrence White*, #1R0391-8-EB, Findings of Fact, Conclusions of Law, and Order (Apr. 16, 1998) (dust and noise impacts from project were offensive and shocking because they were out of character with surrounding pre-existing land uses); *Re:*

George, Mary, and Rene Boissoneault, supra (poorly designed intensive use of meadow is offensive because it will significantly diminish area's scenic value).

The Board has also determined whether quarry projects were offensive and shocking to nearby residents. In *Re: J.P. Carrara and Sons, Inc. #1R0589-EB* Findings of Fact, Conclusions of Law, and Order at 6 and 11 (Feb. 17, 1988), the Board based its decision that the project complied with Criterion 8 and was not offensive and shocking because there was a 200 foot wide vegetated strip that extended around the perimeter of the property. Most recently, in *Re: McLean Enterprises, Inc., supra*, at 60, the Board found that the hillside quarry and access road were shocking and offensive to adjoining property owners because of the lack of any buffer between the project and the residents on adjoining parcels.

In the instant case, buffer between the nearest residents and the operational areas of the quarry is more similar to *Re: J.P. Carrara, supra*, than *Re: McLean Enterprises, Inc., supra*. The Board also finds that the operational areas of the quarry will likely be either out of sight because of the topography of the land or screened by the berm and vegetation for all but a few residences. Given the distance of the views, the adequate buffer, and the screening by the berm and vegetation, the Board concludes that the views will not be shocking and offensive.

The Board's determination is further supported by the fact that under the mitigation requirement discussed below, the Board is requiring Pike to maintain the current ridgeline. The Board previously found that if the current ridgeline is maintained and the berm constructed, it is unlikely that any of the ROQIN parties will be able to see the operational areas of the quarry, except distant views from across the valley.

Noise

Under this second factor, the Board must determine whether the noise generated by the Project will be so out of character with its surroundings or so significantly diminish the scenic qualities of the area as to be offensive or shocking to the average person. *Re: Pike Industries, Inc., supra*, at 18 -19; *Re: OMYA, Inc., supra*, at 37.

There is no question that the noise from the Project will add to the noise presently experienced by the ROQIN parties near McGlynn Road and the frequency of noise heard by parties who live near Route 14. The intermittent nature of the noise will also be out of character and the volume of the noise will be especially out of character near McGlynn Road. The question, however, is not merely whether the noise from the Project is out of character with the surrounding area but whether it is so out of character as to be aesthetically shocking or offensive to the ordinary person.

In *Re: OMYA, Inc., supra*, at 38, the Board found the impacts and noise levels from 170 additional trucks would be shocking and offensive because it would disrupt the tranquility of the area and make eating, talking, shopping, sleeping etc. less pleasant. On the other hand in *Re: Talon Hill Gun Club, supra*, at 10, the Board held:

Some traffic noise is generated on the nearby roads. Farm machinery is frequently in use. A train regularly travels through the area. The Gun Club does not dramatically interrupt this setting. The noise from the Gun Club will remain annoying. Nothing more. It is not shocking. It does not offend the Board's sensibilities.

Although the number of trucks in the instant case is greater than that in *Re: OMYA, Inc., supra*, there is no evidence that the trucks will disrupt the peace and quiet of a tranquil village. For the most part the Project's trucks will travel on well traveled routes that already have substantial truck traffic. Although the noise from the operations of the Project will be distinct, noticeable, and possibly annoying to some nearby residents, it will not disrupt the patterns of everyday life. Therefore, like *Re: Talon Hill Gun Club, supra*, the noise may be annoying, but it is not shocking and offensive.

Has the applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings?

In judging whether there should be mitigation, the Board looks to the steps that the applicant has taken or may take to reduce the aesthetic impacts of a project on the character of the area where it is proposed; the Board asks whether there are generally available mitigating steps that have or should be taken to improve the harmony of the project with its surroundings. See, *Re: Thomas W. Bryant, supra*, at 22 (height and exterior color restrictions on homes, plantings to screen the development, covenants to govern future activities on the site, and retained open space all comprised generally available mitigating steps to alleviate adverse effects of subdivision on the surrounding area).

Pursuant to 10 V.S.A. §6086(c), the Board has the authority to impose conditions necessary to alleviate adverse impacts with respect to the ten Act 250 criteria. As long as a condition constitutes a proper exercise of the police power and alleviates adverse affects that would otherwise be caused by a project, the Board may impose the condition.

A permit may be granted if appropriate permit conditions can alleviate the undue adverse effect of a project as presented. Generally, the Board has issued permits with conditions and stated that it is up to the permittee to choose how to meet

the conditions. *Re: Hannaford Brothers Co. and Southland Enterprises, Inc., #4C0238-5-EB*, Findings of Fact, Conclusions of Law, and Order at 23 (Nov. 27, 2002).

On the other hand, the Board will deny a permit if permit conditions cannot be drafted to alleviate the undue adverse impact. However, it is contrary to common sense and could result in irreparable environmental harm to grant a permit authorizing a project with permit conditions which alleviate the undue adverse impacts, if the evidence indicates the permittee cannot comply with the conditions. This holds especially true for a quarry operation where construction would result in environmental impacts which could not be easily reversed. *Re: McLean Enterprises, Inc., supra*, at 62.

Scenic and Visual Beauty

The Project includes several measures to mitigate the impacts to the scenic and visual beauty of the area. These measures include leaving one third of the 90 acre Project tract undeveloped and screening the Project from almost all near and some distant views. The crusher and 900 square feet office building will not be visible from off-site.

Although the above measures are significant, in order to comply with Criterion 8, a Project must incorporate all generally available mitigation steps which a reasonable person would take to improve the harmony of the project with its surroundings. The ROQIN parties argue that as a reasonable mitigation measure the Board should prohibit quarrying beyond the natural ridgeline in Cells 5 and 6. Whether reasonable mitigation requires the reduction of the scope of a project to preserve a significant scenic resource depends on the particular facts and circumstances of each case.

If Pike demonstrated that it needed to include every cubic inch of the six cells in order to operate the Project at maximum extraction rates over the life of the permit, the Board may have had a difficult determination whether reasonable mitigation included preserving the natural ridgeline. However, given the requested scope and duration of the permit, the Board's determination is much easier.

Pike requested a permit for 25 years. Pike also admitted that it will not begin to extract rock from Cell 5 until approximately Year 21. As a result, Pike admitted that it will need a permit amendment to continue quarrying and begin the extraction in Cell 6. Thus, the question the Board is faced with is if Pike will not be able to extract all the rock from the six cells during the life of the permit, is it reasonable to impose permit conditions that limit where Pike can and cannot quarry.

The Board concludes that it is reasonable to impose permit conditions that allow Pike to quarry at the maximum annual extraction rate it requested over the duration of the permit but prevents unnecessary destruction of the entire upper meadow in Cells 5 and 6. Pike may quarry the lower portions of Cells 5 and 6 up to the existing ridgeline which, for purposes of this permit, is deemed to be 540 feet from the center line of McGlynn Road.⁸ These mitigation measures will both preserve the view from McGlynn Road as much as possible and also as discussed below further reduce the impact of the Project's noise on the residents near McGlynn Road. At the same time, there can be no doubt that these measures are reasonable since Pike will still be able to operate the Project at maximum capacity.

Noise

Under the mitigation requirement the Board has generally imposed maximum noise levels and limited the hours of operation. For example, in *Re: Barre Granite Quarries, supra*, the Board set a maximum allowable noise level for when noise is unduly adverse at 55 dBA Lmax at any residence or outdoor area of frequent human use and 70 dBA Lmax at the property boundary. Since *Re: Barre Granite Quarries, supra*, the Board has continued to utilize the dBA Lmax as a standard, although on occasion it has made minor modifications to the allowable Lmax level based on the particular facts and circumstances of a case.

In *Re: McLean Enterprises, Inc., supra*, at 66, the Board recognized the advantages and disadvantages of using a set Lmax noise level, and modifying it if necessary to fit the circumstances of the case. Although the Board considered other options including a relative standard, ultimately, the Board deferred overhauling the noise standards for another day.

The Board also recognizes that the evidence produced in an adversarial process is designed to advocate a particular position, not strike a reasonable balance. While the parties' evidence has offered the Board substantial guidance, it has not provided a secure foundation from which to build a new noise standard. Given the complex and technical field of environmental acoustics, the Board will defer a major overhaul of its noise rulings until it has the opportunity to address it through rulemaking after hearing from a panel of experts and other interested parties.

Thus, the 55 dBA Lmax limit for residences and outdoor areas of frequent human use and the 70 dBA Lmax limit at the property boundary standards first articulated in *Re: Barre Granite Quarries, supra*, are still controlling law.

⁸ The Board further specifically holds that its conclusion in this regard does not act as a bar under EBR 34(E) to prevent Pike from applying for a permit amendment at some future date to amend this permit condition.

Although Pike's original CADNA A modeling predicted noise levels up to 60 dBA Lmax at some residences, subsequent modeling based on modified equipment and inputs predicted noise levels below the above noise standards. For example, Pike's use of the "down the hole drill" significantly reduces the noise level by one of the single loudest pieces of equipment.

The Board recognizes that computer modeling is equal parts art and science. The CADNA A model is only as accurate as the inputs that are used. Choosing inputs for the model which accurately reflect conditions in the field is an art. If the art of choosing inputs is well executed, the science of the model will accurately predict the results.

The ROQIN parties point out that Pike altered its inputs on some variables during the different rounds of modeling. However, these variables such as foliage and ground cover only account for relatively small adjustments to the predicted results. The Board also notes that the permit condition prohibiting Pike from quarrying Cells 5 and 6 within 540 feet from the centerline of McGlynn Road will also significantly mitigate the noise impacts to the ROQIN parties near McGlynn Road.

The Board finds that Pike's final modeling is credible.⁹ Although the ROQIN parties question certain inputs, they did not produce their own more credible modeling. Pike's final modeling predicted that the Project will comfortably comply with the Board's noise standard. As discussed before, if Pike used overly optimistic inputs in its modeling, it will have to modify its operations in order to meet its representations that the Project will comply with the Board's noise standards.

In sum, under Criterion 8 the Board will impose a permit condition requiring the quarrying in Cells 5 and 6 to stay at least 540 feet from the center line of McGlynn Road. In addition, since the Project can comply with the 55 dBA Lmax at residences and outdoor areas of frequent human use and 70 dBA Lmax at property boundaries, the Project complies with Criterion 8.

G. Criterion 9(E)

Before issuing a permit for the extraction or processing of mineral and earth resources, including fissionable material, the Board must find that, in addition to all other applicable criteria,

⁹ If Pike's modeling had not been credible, the Board could have required additional modeling with inputs set by the Board. See, *Re: McLean Enterprises, Inc., supra*, at 67.

(i) the extraction or processing operation and the disposal of waste will not have an unduly harmful impact upon the environment or surrounding land uses and development; and

(ii) [there is] a site rehabilitation plan which insures that upon completion of the extracting or processing operation the site will be left by the applicant in a condition suited for an approved alternate use or development. ...

10 V.S.A. §6086(a)(9)(E); *Re: Barre Granite Quarries, supra*, at 88. The burden of proof is on Pike to show compliance with Criterion 9(E). 10 V.S.A. §6088(a).

Criterion 9(E) embodies two key provisions. First, earth extraction and processing Projects may not cause undue harm to the environment or neighboring land uses. The Board considers Criterion 9(E) to include and go beyond aesthetic impacts, to encompass interference with enjoyment of the land and to seek to prevent such interference from becoming undue. *Re: Barre Granite Quarries, supra*, at 88, citing *Re: John and Marion Gross d/b/a John Gross Sand and Gravel, #5W1198-EB* Findings of Fact, Conclusions of Law, and Order at 16 (Apr. 27, 1995). Therefore, any specific effects demonstrated under other criteria (i.e. air, noise or water pollution) may also be raised under 9(E) if the Project involves earth resources. Second, the applicant must provide that appropriate reclamation of the quarry site will occur.

Unduly harmful impact upon surrounding land uses

The primary issue raised within the Board's consideration under Criterion 9(E) involves concerns by a neighbor to the quarry, Pierre and Carmen Ducharme, about the effect of vibrations resulting from quarry blasting on the tools in their machine shop. Mr. Ducharme's machines must be carefully leveled. He is concerned that the blasting at the quarry may have impacts on this requirement.

Mr. Ducharme supplied the tolerances for these machines. Pike's expert calculated that the Peak Particle Velocity (PPV) necessary to cause deflection in the tool is 7.53 in/sec. The PPV expected at the site of the shop is approximately 0.5 in/sec.

As is the case with Criterion 1 (air), the impacts of Pike's blasting cannot be known with absolute certainty. But here, credible evidence has been presented to the Board to support a conclusion that the use of explosives at the Project site, if conducted as designed, should not cause adverse impacts on the Ducharme business.

The Board has imposed conditions on quarrying operations in order to mitigate any undue harm to environment or neighboring land uses. *E.g., Re: Barre Granite Quarries, supra*, at 89. The Board will not require the use of tiltmeters; however, the Board will require that Pike install seismographs just to the east of the berm in the northeast portion of the Project on a line between the blasting sites and the Ducharme property, and that the results of each blast recorded on these seismographs be made available to Ducharme shortly after each blast event.

Should the seismographs show likely exceedences of a PPV of 7.53 in/sec, then Pike must conduct a review of its blasting plan.

Appropriate reclamation of the quarry site

Pike has filed an acceptable rehabilitation plan with the Commission (of which the Board has taken official notice), and, with the additional conditions concerning reclamation of the bench areas as the Project moves eastward, the Board concludes that the Project meets Criterion 9(E)(ii).

The Board therefore concludes that the Project will comply with Criterion 9(E).¹⁰

H. Criterion 9(K)

Criterion 9(K) 10 V.S.A. §6086(a)(9)(K) provides that:

A permit will be granted for the development or subdivision of lands adjacent to governmental and public utility facilities, services, and lands, including, but not limited to, highways, airports, waste disposal facilities, office and maintenance buildings, fire and police stations, universities, schools, hospitals, prisons, jails, electric generating and transmission facilities, oil and gas pipe lines, parks, hiking trails and forest and game lands, when it is demonstrated that, in addition to all other applicable criteria, the development or subdivision will not unnecessarily or unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the

¹⁰ The ROQIN parties argue that Criterion 9(E) may be used to address concerns relative to air pollution, impacts on water supply, noise, and visual impacts on surrounding land uses. These impacts are separately addressed in the specific criteria that apply to those impacts.

function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service, or lands.

The burden of proof to show that the proposed development will satisfy Criterion 9(K) is on the Permittee. 10 V.S.A. §6088(a). A failure to meet that burden may result in a denial of an Act 250 application. 10 V.S.A. §6087.

The Board conducts two separate inquiries under Criterion 9(K) with respect to governmental and public facilities. First, the Board examines whether a proposed project will unnecessarily or unreasonably endanger the public investment in such facilities. Second, the Board examines whether a proposed project will materially jeopardize or interfere with (a) the function, efficiency or safety of such facilities, or (b) the public's use or enjoyment of or access to such facilities. *Re: Swain Development Corp., #3W0445-2-EB, Findings of Fact, Conclusions of Law, and Order at 33 (Aug. 10, 1990).*

The issue under Criterion 9(K) is whether the Project will materially jeopardize or interfere with the safety or the public's use and enjoyment of Routes 14 and 63. Given the additional mitigation measures that Pike has agreed to undertake and the fact that the Board has already determined that the Project's traffic complies with Criterion 5, the Board concludes that the Project complies with Criterion 9(K).

I. Criterion 10

10 V.S.A. §6086(a)(10) reads:

(a) Before granting a permit, the board or district commission shall find that the subdivision or development: ... (10) Is in conformance with any duly adopted local or regional plan

In addressing Criterion 10, the Board will review a Town Plan to determine whether it can provide guidance as to whether a particular project is in conformance with the plan's language. The Board asks two separate questions: (1) Is the language in the Town Plan mandatory or merely a guidance? (2) Are the Town Plan's provisions specific or ambiguous? *See, Re: Peter S. Tsimortos, #2W1127-EB, Findings of Fact, Conclusions of Law, and Order at 25 – 27 (Apr. 7, 2003).* Pike has the burden of proving that Criterion 10 has been met. 10 V.S.A. §6088(a).

The Town Plan clearly allows extraction of earth resources as a permitted use in the Districts where the Project is proposed. The questions, then, are whether the Project complies with the limitations on the "extraction of earth resources," and whether some other provision of the Plan prohibits the Project in its proposed Districts.

“Extraction of earth resources” projects

A project that is the “extraction of earth resources” must abide by several provisos, two of which are relevant to the present matter. First, any such extraction has limits on its size:

(C) that in any new operation outside of the Industrial District, the area excavated does not exceed five (5) acres (217,800 square feet) at any one time. Smaller areas may be designated if necessary to protect the character of the neighborhood where the operation is located

The ROQIN parties contend that the Plan requires a consideration not only of the area actually being excavated but also of those areas which are used for ancillary operations. In this case, those areas will include the roads and the area which will be the site of the crushers and settlement ponds. As the ROQIN parties correctly note, these ancillary areas themselves total more than five acres.

The Board does not agree. The Plan speaks of “the area excavated,” a clear indication that the Plan means only to restrict the land on which the actual excavation is occurring. Had the Plan meant to include other areas which may be ancillary to and in support of the excavation activities, it could have so stated. Areas such as roads, and storage, building and crushing sites are excavated to facilitate construction. These are not excavated areas once construction is completed. The Town Plan must thus intend to allow areas other than the actual excavation area to be operated as a part of the operation, outside of the five-acre limitation.

Further, “crushed rock” is included within the definition of those materials that may be extracted as an “earth resource.” Such rock is not inherent to the land; it is rock that is quarried and then crushed into smaller pieces. As such, the definition of “extraction of earth resources” must therefore include an operation that allows for crushing.

Second, the Plan requires of projects that involve the “extraction of earth resources” that

(H) any such project is designed and proposed so as to mitigate any negative impact upon neighboring properties including, but not limited to, noise, dust, water supplies, water drainage, traffic, and sewage disposal systems.

Each of the concerns noted in this section of the plan is the subject of a particular Act 250 criterion. As the Board has found that the Project complies with

those specific criteria,¹¹ all of which require a finding that there will be no undue impacts, and the Town Plan does not specifically provide for a heightened review beyond the review ordinarily conducted by the Board under those criteria, the Project also complies with this provision of the Town Plan.

"Industrial" uses

The Board notes that, while the "extraction of earth resources" is a use that is specifically allowed in the Project's Districts, most other industrial and commercial uses are prohibited, at least within the Agricultural District.

The Project is not a "light Industrial" use because it is not an enterprise which manufactures, repairs, or assembles products or provides services within the confines of buildings. Nor is the Project a "heavy Industrial" use because it does not engage in the "manufacturing of materials or products predominantly from extracted or raw materials," nor does it "engage in storage of, or manufacturing processes using flammable or explosive materials."¹²

Protection of residential development

Lastly, while the Board notes that the "main consideration" of the Rural Resource Recreational Residential District "shall be the protection of existing residential development," a strict reading of this provision could result in a direct conflict with the provision that allows earth resource extraction within that District. Where such a conflict could occur, the Board will give preference to the particular provision that specifically permits the extraction operation, which is at the heart of this Project. See, *State v. Jarvis*, 146 Vt. 636, 638 (1986) (where two statutory provisions deal with the same subject matter, and one is general and the other specific, the more specific provision is to be given effect).

The Project complies with Criterion 10 (Town Plan).

¹¹ Within its review of Criteria 1 and 4, the Commission concluded that the Project satisfied certain aspects of Section III(H) of the Town Plan, such as water drainage and sewage disposal systems. The Commission's conclusions on these criteria were not the subject of this appeal, and the Board takes official notice of said conclusions in determining that the Project satisfies Section III(H).

¹² As noted in the Finding of Fact 196, no explosives will be stored on the Project site.

V. Order

1. The Project complies with 10 V.S.A. §§6086(a)(1)(air), (2), (3), (5), (8), (9)(E), (9)(K) and (10).

2. This matter is remanded to the District 5 Environmental Commission for issuance of a Land Use Permit consistent with the Commission Decision, the Findings of Fact and Conclusions of Law in this decision, and the conditions imposed in this decision.

3. Jurisdiction is returned to the District 5 Environmental Commission.

Dated at Montpelier, Vermont this 7th day of June 2005.

ENVIRONMENTAL BOARD

_____/s/Patricia Moulton Powden
Patricia Moulton Powden, Chair
* George Holland
Samuel Lloyd
Patricia A. Nowak
Alice Olenick
Richard C. Pembroke, Sr.
A. Gregory Rainville
Jean Richardson
Christopher D. Roy

* Board Member Holland: I concur with this decision in its entirety except for the permit condition that will prevent Pike from quarrying beyond the upper meadow ridgeline in Cells 5 and 6 during the latter years of its 25-year permit. I consider this requirement to be unnecessary.