STATE OF VERMONT
ENVIRONMENTAL BOARD
DISTRICT ENVIRONMENTAL COMMISSION #5

RE: Rivers Development, LLC
Box 555
Waitsfield, VT 05673

Application #5W1455
FINDINGS OF FACT
CONCLUSIONS OF LAW
AND ORDER
10 V.S.A., §§ 6001 6092

I. INTRODUCTION

On October 18, 2005, Rivers Development, LLC filed application #5W1455 for an Act 250 permit to operate a rock quarry and crushed rock processing facility on a 93∀ acre tract located in the Town of Moretown. The proposed project is located on Vermont Route 100B approximately 2.5 miles north of Moretown Village. The quarry will be accessed from Route 100B by a haul road approximately 1,400 feet in length. The tract of land consists of 93 acres with 17 acres involved in the project. The proposal will encompass six phases, have a maximum annual extraction rate of 75,000 cubic yards and will operate over a period of 33 years.

II. JURISDICTION

Jurisdiction attaches to this development proposal pursuant to 10 V.S.A. 6001 (3)(A)(i).

III. PARTY STATUS

A) Statutory parties to this application, pursuant to 10 V.S.A. § 6085(c)(1)(A)-(D) are:

1. The Applicant and landowner, Rivers Development LLC represented by Richard Rivers, James Caffry, Esq., Chris Nordle, Esq., Gunner McCain and others.

2. The Town of Moretown Selectboard, Planning Commission and School Board represented by Ronald Shems, Esq., Geoff Hand, Esq. and others.

3. The Central Vermont Regional Planning Commission by Chris Walsh.

4. The Agency of Natural Resources by means of pre-filed comments dated November 21, 2005. (Exhibit 14 - Parties)

B) The following individuals requested party status pursuant to 10 V.S.A. 6085 (c)(1)(E) and were either admitted as preliminary parties or were denied party status as set out below.

1. Benjamin and Denise Sanders are adjoining property owners with a residence off Route 100B to the southwest of the Project tract. They filed a position dated November 21, 2005 requesting party status under Criteria 1(Air), 1(B), 1(E), 1(F), 3, 4, 5, 6, 7, 8, 8(A), 9(A), 9(E), 9(H), 9(K) and 10 (town plan). A later request was made under criterion 2. The Sanders were granted preliminary party status under Criteria 1 (Air), 1(B), 1(E), 2, 3, 4, 5, 8, 9(E) and 10 (town plan). The Sanders were denied party status under Criteria 1(F), 6, 7, 8(A), 9(A), 9(H) and 9(K).

2. Arthur and Linda Hendrickson are adjoining property owners to the southeast of the Project tract and across Route 100B. They filed positions dated November 21, 2005 and March 1, 2006 requesting party status under Criteria 1(Air), 1(B), 1(D), 1(E), 3, 5, 8, 9(A), 9(E), and 10 (town and regional plans). The Hendricksons were granted preliminary party status under Criteria 1 (Air), 1(B), (runoff), 1(E), 3, 5, 8, 9(E) and 10 (town and regional plans). The Hendricksons were denied preliminary party status under Criteria 1(D) and 9(A).

3. Scott and Patricia Sainsbury are property owners with a residence off Bridge Road to the south of Project tract and across the Mad River. They requested party status under Criteria 1(Air), 1(B), 1(C), 1(E), 1(F), 3, 4, 5, 6, 7, 8, 9(A), 9(E), 9(H), 9(K) and 10 (town and regional plans). The Sainsburys were granted preliminary party status under Criteria 1 (Air), 5, 8, 9(E) and 10 (town and regional plans). The Sainsburys were denied preliminary party status under Criteria 1(B), 1(C), 1(E), 1(F), 3, 4, 6, 7, 9(A) and 9(K).

4. The Life Estate of June Holden was represented by Pamela Holden. The Estate is an adjoining property owner to the east of the Project tract. It filed a position dated November 19, 2005 requesting party status under Criteria 1(Air), 1(B), 3, 4, 5, 8, 8(A), 9(E) and 9(K). The Life Estate of June Holden was granted preliminary party status under Criteria 1 (Air), 1(B), 3, 4, 5, 8 and 9(E). It was denied party status under Criteria 8(A) and 9(K).

5. Robert and Beverly McMullin are adjoining property owners with a residence off Old Route 100 to the South of the Project tract. They filed a position dated November 15, 2005 requesting party status under Criteria 1 (Air), 1(B), 1(E), 3, 4, 5, 8, 9(E), 9(H), and 10 (town plan). The McMullins were granted status under Criteria 1 (Air), 1(B), 1(E), 3, 4, 5, 8, 9(E) and 10 (town plan). The McMullins were denied status under Criterion 9(H).

6. John and Sandy Porter reside on Old Route 100 to the southeast of the Project tract. While their property adjoins the Hendricksons' property, the Porters are not adjoiners to the Project tract. They requested party status under Criteria 1 (Air), 1(B), 3, 5, 8, 8(A), 9(A), 9(E), 9(H), 9(K) and 10. The Porters were granted status under Criteria 1 (Air), 3, 8, 9(E) and 10 (town plan). The Porters

were denied status under Criteria 1(B), 1(E), 1(F), 2, 4, 6, 7, 8(A), 9(A), 9(H) and 9(K),

7. Raymond and April Trepto are adjoining property owners with a residence off VT Route 100B to the southeast of the Project tract. The Treptos requested party status under unspecified criteria based on proximity to the project site and existing high property taxes. In response to inquiry by the Commission chair, they indicated they did not have concerns about potential air pollution, noise, water supply, or traffic impacts. The Treptos were denied party status having not identified any concerns under Act 250 criteria.

8. Robert Dansker is an adjoining property owner to the north/northwest of the Project tract. He filed a position dated November 21, 2005 requesting party status under Criteria 1 (Air), 5, 6, 7, 8, 9(E) and 10 (town plan). Mr. Dansker was granted status under Criteria 1 (Air), 5, 8, 9(E) and 10 (town plan). Mr. Dansker was denied status under Criteria 6 and 7.

9. Karen Sharpwolf resides off Honan Road to the east of the Project tract. Ms. Sharpwolf's property is approximately 500 yards distant from the Project site and across the Mad River. She filed a position dated November 21, 2005 requesting party status under Criteria 1(Air), 6, 8 and 9(E) and also requested status under Criteria 5 and 9(K) at the conference. Ms. Sharpwolf was granted status under Criterion 8. Ms. Sharpwolf was denied status under Criteria 1 (Air), 5, 6, 9(E) and 9(K).

10. Jack Byrne and Virginia Farley reside off Old Route 100 to the south of the Project tract and across Route 100B. They are not adjoining property owners to the Project tract but their property is within 1,000 feet of the tract. They filed a position dated November 21, 2005 requesting party status under Criteria 1 (Air), 1(B), 1(E), 2, 3, 4, 5, 6, 7, 8, 8(A), 9(A), 9(E), 9(H), 9(K) and 10 (town and regional plans). Mr. Byrne and Ms. Farley were granted status under Criteria 1 (Air), 1(B), 1(E), 3, 4, 5, 8, 9(E) and 10 (town and regional plans). Mr. Byrne and Ms. Farley were denied status under Criteria 2, 6, 7, 8(A), 9(A), 9(H) and 9(K).

11. Thomas Allen resides off Route 100B approximately 1.3 miles south of the Project ttract. He filed a position dated November 14, 2005 requesting party status under Criteria 5, 8, 9(K), and 10 (town plan). Mr. Allen was granted status under Criteria 8 and 10 (town plan). Mr. Allen was denied status under Criteria 5 and 9(K).

12. Catherine Jonas resides on Honan Road adjacent to Ms. Sharpwolf. She requested party status under Criteria 8 and 10 (town plan). Ms. Jonas was granted status under Criteria 8 and 10 (town plan).

13. John Gallagher resides on Honan Road adjacent to Ms. Sharpwolf. He requested party status under Criteria 8 and 10 (town plan). Mr. Gallagher was granted status under Criteria 8 and 10 (town plan).

14. Rita LaRocca resides on Moretown Common Road to the east of the Project tract. She filed a position dated November 21, 2005 requesting party status under Criteria 1 (Air), 8, 9(E) and 10 (town plan) and also requested status under Criteria 6 and 9(A) at the pre-hearing conference. Ms. LaRocca was granted status under Criteria 8 and 10 (town plan). Ms. LaRocca was denied status under Criteria 1 (Air), 6, 9(A) and 9(E).

15. Marten and Ruth Van Heuven reside on Farnham Road. Their property adjoins the Sainsbury property and is to the southeast of the Project tract across the Mad River. The Van Heuvens filed an undated position at the conference and then filed an amended position dated November 26, 2005. They requested party status under Criteria 1 (Air), 5, 6, 8, 9(A), 9(H), 9(K) and 10. The Van Heuvens were granted status under Criteria 8 and 10 (town plan). The Van Heuvens were denied status under Criteria 1 (Air), 5, 6, 9(A), 9(H) and 9(K).

16. Rick Hungerford resides on Route 100B approximately 2 miles northerly of the roject tract. He requested party status under Criteria 5 and 8. Mr. Hungerford was denied status under Criteria 5 and 8.

17. Douglas and Cindy Hall reside on Honan Road and did not attend the conference ut filed an undated position on November 21, 2005 requesting party status under Criteria 1 (Air), 8, 9(E) and 10 (town plan). The Halls were granted status under Criteria 8 and 10 (town plan). The Halls were denied status under Criteria 1 (Air) and 9(E).

18. Wichard and Constance Van Heuven reside on Moretown Common Road and did not attend the conference but filed a position dated November 20, 2005 requesting party status under Criteria 1 (Air), 8, 9(E) and 10 (town plan). The Van Heuvens were granted status under Criteria 8 and 10 (town plan). The Van Heuvens were denied status under Criteria 1 (Air) and 9(E).

19. Leslie and Gary Russell reside on Moretown Common Road approximately 1.5 miles east of the Project tract. They did not attend the conference but filed a position dated November 20, 2005 requesting party status under Criteria 1 (Air) and (Water), 8 and 9. The Russells were granted status under Criterion 8. The Russells were denied status under Criteria 1 (Air), 1 (Water) and 9.

20. The Moretown School Board is not a party of right pursuant to 10 V.S.A. 6085(c)(1)(C). The District Commission decided to admit the School Board under Criteria 6, 9(A) and 9(H) pursuant to 10 V.S.A. 6085(c)(1)(E).

Final Party Status Determinations

Pursuant to 10 V.S.A. §6085(c)(6) the District Commission reviewed its preliminary determinations concerning party status at the close of the hearings. Persons having attained party status up to that point were presumed to retain party status. No Party filed a motion requesting that the Commission reconsider the extent to which parties continue to qualify for

party status. Prior to the completion of deliberations, the District Commission re-examined the preliminary party status determinations and found that the parties continue to qualify under the relevant criteria as stated above.

IV. PROCEDURAL HISTORY

The following chronology represents key aspects of the procedural history of this case.

October 18, 2005	Application materials filed with the District 5 Environmental Commission. (Applicant's Exhibits 1-32).
November 21, 2005	The District Commission convened a Pre-hearing Conference to set a filing schedule for submission of preliminary issues to be considered, to hear requests for party status, and to determine a date for a site visit. Applicant and parties stipulate to deadlines for the filing of during December 2005 and January 2006.
December 12, 2005	The District Commission conducted an extensive site visit. The Applicant, statutory parties and prospective parties accompanied the Commission members. The scope of the visit included the Project tract. The Commission indicated that a supplemental site visit will be scheduled at a later date with input from the parties in the development of the itinerary.
January 24, 2006	The District Commission met in deliberative session.
February 3, 2006	The District Commission issued a Pre-hearing Conference Report making rulings on party status, motions for relevancy and scope of review on "property values;" requests for supplemental submittals or "discovery;" service of documents; request for identification of expert witnesses by Parties and filing of summaries of testimony; directions for service of documents under Rule 12(J); and a reminder of the evidentiary burdens of proof, production and persuasion. Evidentiary hearings were scheduled for March 14, 18 and 21.
February 10, 2006	The District Commission issued a Pre-Hearing Conference Report Supplemental Order requiring that the Applicant file all requested supplemental submittals by February 17, 2006, and that parties file any responses by March 3, 2006.
February 17, 2006	District Commission issued a memorandum regarding non-adversarial resolution of issues under 10 V.S.A. §6085(e), and the

	Commission's role in such resolution, in response to a February 13, 2006 inquiry by counsel for the Town of Moretown.
February 24, 2006	The District Commission issued a Supplemental Pre-Hearing Conference Report containing scheduling information and ruling on additional party status requests, expert witness disclosure and the Town's motion to stagger evidence.
March 1, 2006	The District Commission issued a memorandum regarding scheduling and mediation. In addition, the Commission determined that blasting impacts on equine land uses would be considered under Criterion 9(E)(i).
March 3, 2006	The Applicant filed its position on mediation statement.
March 7, 2006	The Town of Moretown filed response to the Applicant's mediation statement (Parties' Exhibit 30).
March 14, 2006	The District Commission convened an evidentiary hearing and the Applicant presented an overview on the fundamental operational aspects of the quarry as well as basic siting considerations. Evidence was taken under Criteria 9(E), 1(B), 1(E), 1(G), 4 and 8(A).
	Party Sharpwolf submitted her Criterion 8 position. Party Sanders submitted evidence under Criterion 8. The Central Vermont Regional Planning Commission submitted its position. Party Sainsbury and witnesses submitted Criterion 9(E) testimony. (Parties' Exhibit 36).
March 18, 2006	The District Commission convened an evidentiary hearing and evidence was taken under Criteria 1(A), 1(D), 1(E), 1(F) 5, 6, 7, 9(A), 9(B), 9(C), 9(D), 9(F), 9(G), 9(H), 9(J), 9(K), and 9(L).
March 21, 2006	District Commission convened an evidentiary hearing and evidence was taken under Criteria 1 (Air) and 8 (noise).
March 28, 2006	District Commission convened an evidentiary hearing and evidence was taken under Criteria 2 and 3.
April 3, 2006	The District Commission issued a Hearing Recess Order regarding expanded Hendrickson party status and outstanding

issues under several criteria. Additional hearings were scheduled for April 13 and 18, May 2, 4 and 23.

April 13, 2006 — District Commission convened an evidentiary hearing and evidence was taken under Criterion 9(E)(i) including the project blasting plan. Commission member Johnson did not attend this hearing but subsequently reviewed the tape recording of the hearing and all related exhibits.

April 18, 2006 — District Commission convened evidentiary hearing and evidence was taken under Criteria 5 and 9(K).

April 28, 2006 — The District Commission issued a Hearing Recess Order confirming the agendas for the May 2, 4 and 23 hearings. The Commission scheduled an additional hearing for June 15. The Commission also scheduled supplemental site visits for May 2 and 23..

May 2, 2006 — District Commission convened an evidentiary hearing and evidence was taken under Criteria 8 (parties LaRocca and Dansker) and 9(E)(i)(blasting plan).

May 4, 2006 — District Commission conducted a supplemental site visit and then convened an evidentiary hearing and evidence was taken under Criterion 8 (noise). Commission member Towne did not attend this hearing but subsequently reviewed the tape recording of the hearing and related exhibits.

May 8, 2006 — The District Commission issued a Hearing Recess Order confirming the agenda for the May 23 and June 15 hearings. An additional hearing was scheduled for June 27. A supplemental site visit was rescheduled from May 23 to June 27. The Commission suggested a filing schedule for proposed findings of fact and rebuttals.

May 15, 2006 — District Commission convened an evidentiary hearing and evidence was taken under Criteria 8 and 10.

May 23, 2006 — District Commission convened an evidentiary hearing and evidence was taken under Criteria 1(B), 1(E), 4, 6, 7 and 9(A).

June 15, 2006 — District Commission convened an evidentiary hearing and evidence was taken under Criteria 8 and 10.

June16, 2006	The District Coordinator issued a memorandum by email regarding additional evidence requested by the Commission under Criteria 4, 8 and 10 and a proposed itinerary for the June 27 site visit. The memorandum was distributed to the Parties in hard copy on June 19, 2006.
June 23, 2006	The District Coordinator issued a memorandum regarding the itinerary for the June 27 site visit.
June 27, 2006	The District Commission conducted a supplemental site visit and then convened a hearing and evidence was taken under Criteria 8, 9(C) and 10. The applicant and parties provided closing statements summarizing their cases.
June 30, 2006	The District Commission, through the District Coordinator issued a memorandum regarding the Commission's observations from the June 27 site visit.
June 30, 2006	The District Commission issued a Hearing Recess Order regarding submission of sound level readings taken at the June 27 site visit, submission of site visit observations and filing deadlines.
July 17, 2006	Filing date for proposed findings of fact, conclusions of law and permit conditions.
July 20, 2006	District Commission conducts a final supplemental site visit throughout Moretown Village.
July 27, 2006	Filing date for rebuttals or responses to proposed findings of fact.

The District Commission met in deliberative sessions in this matter on July 25, August 1, September 7, October 25, November 6, December 11 and 19, 2006, and January 4 and 18, 2007.

V. FINDINGS OF FACT

Under Act 250, projects are reviewed based on the 10 criteria of 10 V.S.A., Section 6086(a) (1)-(10). Before granting a permit, the District Commission must find that the project complies with these criteria and is not detrimental to the public health, safety or general welfare.

Decisions must be stated in the form of Findings of Fact and Conclusions of Law. The facts we have relied upon are contained in the documents on file identified as Applicant's Exhibits 1-108, Parties' Exhibits 1-110 and District Environmental Commission -1, all as detailed on the exhibit lists attached to this decision and the evidence received at the hearings.

To the extent that any proposed findings of fact are included below, they are granted; otherwise, they have been considered and are denied. See Petition of Village of Hardwick Electric Department, 143 Vt. 437, 445 (1983).

In making the following findings, the Commission has summarized the statutory language of the 10 criteria of 10 V.S.A., Section 6086(a).

The findings of fact below are organized into general findings followed by sections related to the specific criteria. Because many findings are relevant to more than one criterion, the findings should not be read as applicable only to the specific issue(s) under which they are contained. Where findings from the general category or another specific category are relevant, they are assumed and not repeated throughout this decision.

GENERAL FINDINGS:

1. The proposal consists of a rock quarry that will include a crushing operation, stockpile areas, sales facility, settling ponds, haul roads and other improvements. (Applicant's Exhibits 1, 2 , 3, 4, and 95)

2. The project tract is currently wooded with a mixture of hard and softwood trees. Slope percentages on the parcel area are wide-ranging due to the abundance of ledge outcrops. There is a stream on the southwest portion of the tract and a Class III wetland located near the project operations. (Applicant's Exhibits 3 and 4)

3. The tract is 93 acres and is located on the northwest side of Vermont Route 100B approximately 2 ½ miles north of Moretown village. The closest point of active quarry footprint to 100B will be 750 feet. (Applicant's Exhibits 2, 3, and Testimony of McCain)

4. The tract has frontage on Route 100B, a rural major collector highway. Access to the project will be via an existing woods road which will be widened and improved to accommodate the vehicles that will access the site. (Applicant's Exhibits 2, 3, and Testimony of McCain and Dickinson)

5. Adjoining properties to the tract are generally developed with residences. There are several equestrian facilities located in the vicinity of the project. (Testimony of Sanders and Sainsbury)

6. The applicant proposes to extract, process and sell a maximum of 75,000 cubic yards per year and approximately 2.5 million cubic yards of crushed rock during the duration of the project. Operations will include the clearing of vegetated cover, the stripping of topsoil and overburden, drilling, blasting, excavating, stockpiling and loading, hauling and

processing of rock in order to produce a variety of sized crushed rock products. (Applicant's Exhibits 2 and 3 ; and Testimony of McCain)

7. A roadway of approximately 1,400 feet in length will run from the quarry site to Vermont Route 100B. The road currently exists as a woods road with an existing curb cut and will be improved to accommodate truck traffic. (Applicant's Exhibits 2, 3, 4, 17, 18; and Testimony of McCain and Dickinson)

8. The quarry will be developed in a phased manner over a 33 year period but not necessarily in the numerical sequence shown on the plans. Actual sequencing will depend on stone quality and types. The site will be excavated to a maximum depth of up to 210 feet below the existing ground surface. (Applicant's Exhibits 2 and 4 and Testimony of McCain)

9. Less than 10 acres will be disturbed at any point in time. As the project progresses, the previously quarried area will be reclaimed. At the expiration of the 33 year period, the project will be available for any number of productive uses, such as recreation/ball fields or a rock climbing area. (Applicant's Exhibits 2, 3, 4, 92; and Testimony of McCain)

10. There will be no onsite storage of fuel or blasting materials. (Applicant's Exhibits 2 and 3; and Testimony of McCain)

11. Crushed rock products will be available for retail and wholesale sales to individuals, businesses and municipalities throughout the Mad River Valley and Central Vermont region. The crushed stone products will include large landscaping stones, rip rap stones for river bank protection, 3-5 inch stone for erosion control and ditch lining, 1¼-1½ inch stone for drainage, and ¾-minus stone for road surfacing. (Applicant's Exhibits 2 and 3; and Testimony of McCain and Rivers)

12. The operating schedule for the quarry will be 35 weeks, from April 15 to December 15. The applicant proposes that on-site drilling, blasting and crushing operations will take place Monday through Friday, between 7 a.m. and 5 p.m. - with blasting limited to Monday through Friday, 10 a.m. to 4 p.m. (Applicant's Exhibit 2, 3 and 17; and Testimony of McCain)

13. The project will be open for sale and hauling of crushed stone products Monday through Friday between 7 a.m. and 5:00 p.m. There will be an average of 36 loads per day, with a maximum of 54 loads per day. Trucking will only occur on a weather-permitting basis early and late in the season. It is expected that the quarry will operate for between 150 and 170 days per year. (Applicant's Exhibits 2 and 17 and Testimony of McCain and Dickinson)

14. Employees will conduct maintenance activities between the hours of 7:00 a.m. and 12:00 noon on Saturdays. There will no operations on Sundays. (Applicant's Exhibits 2 and 17; and Testimony of McCain and Rivers)

15. In a typical production year, out of the 150 to 170 operating days, approximately 70 days of drilling will be required, being approximately 5 days of drilling for each of 10 to 12

blasts. Approximately 90 days of crushing will be required each year. (Applicant's Exhibit 2 and Testimony of McCain)

16. Stockpiled material may be accessed during the off-season with prior approval of the Vermont Department of Fish and Wildlife. (Applicant's Exhibits 27 and 28).

17. The following equipment will be operated at the site: (Applicant's Exhibit 2)

1. One hydraulic rock drill
2. One excavator
3. One bucket loader
4. One 6x20 triple deck screener
5. One yard/water truck
6. One backhoe
7. One crusher with total capacity of 100 cubic yards per hour
8. Other miscellaneous equipment as needed

18. For purposes of obtaining data and demonstrating the availability of equipment which complies with noise standards imposed on quarries under Act 250, the applicant provided lists of equipment which will potentially be used at the project. Those lists include the following: (Applicant's Exhibits 39 and 68)

1. Atlas-Copco ROC D3 or Atlas Copco ROC D7 crawler drills
2. Volvo EC290 Excavator
3. Volvo L90E Loader
4. 1000 Maxtrack Crusher

19. Notwithstanding Finding 18, the applicant may use other equipment provided that such equipment will not cause the project's noise to exceed the standards set out in the land use permit. (Testimony of Kalipinski and McCain)

20. Trucks will not back up on a regular basis as they travel through the quarry. A circular drive will be utilized during all phases once the Phase 1 startup work is completed. (Testimony of McCain and Rivers)

SECTION 6086(a)(1) AIR POLLUTION:

21. Several components of the proposed quarry operation represent sources of potential air pollution: diesel exhaust, drilling, blasting, crushing, loading and transport of aggregate materials. (Applicant's Exhibits 2 and 3)

22. The District Commission will review noise impacts from the quarry operation under Criterion 8.

Project Site Air Quality

23. Sections 5-401(5) and 5-501 of Vermont Air Pollution Control Regulations require an air pollution control permit from the Agency of Natural Resources (ANR) Department of Environmental Conservation Air Pollution Control Division if a crusher with a maximum rated capacity of greater than 150 tons per hour is used. The project will utilize a crusher with a capacity of not more than 150 tons per hour, and the internal combustion engine will have a brake horsepower of less than 450 horse power. (Applicant's Exhibits 2, 3 and 6; Testimony of McCain and Guldberg)

24. Crushing activities may be performed by a third party contractor. The crusher that may be brought to the site will either be below the size requiring a permit or will have an individual permit which travels with the equipment, commonly referred to as a mobile source permit. (Testimony of McCain).

25. If a crusher with capacity of more than 150 tons per hour is at some point used, then the owner of the larger mobile crusher, whether it's the applicant or a third party, will obtain a permit from the ANR and notify the District Commission of the use of a larger crusher. (Applicant's Exhibit 3 and Testimony of McCain)

26. No other ANR air permits are required based on other equipment or other activities. (Testimony of Guldberg)

27. The ANR has requested that the following conditions be included in any land use permit. (Parties' Exhibit 14 and See Applicant's Exhibit 6)

    i. The permittee must inform the Agency of any equipment changes at the proposed facility in the future which may require an air pollution control permit. Such changes shall include, but are not limited to, the installation of a rock crusher with a capacity greater than 150 tons per hour or a stationary reciprocating internal combustion with a brake horsepower output rating of greater than 450 hp.

    ii. The permittee shall ensure that reasonable precautions are taken at all times to control fugitive particulate matter (dust) emissions from the site including the rock crushing equipment, haul roads, traffic areas, storage piles, exposed surfaces and any site operations such as drilling, blasting, crushing and processing of materials. This shall include the application of water or calcium chloride as necessary to the haul roads, traffic areas, and storage piles. Wet suppression is considered the minimum preventative measure for all rock crushing equipment.

    iii. The applicant shall not discharge, cause, suffer, allow, or permit from any source whatsoever such quantities of air contaminants or other material which will cause injury, detriment, nuisance or annoyance to any considerable number of people or to the public or which endangers the comfort, repose, health or safety of any such persons or the public or which causes or has a natural tendency to cause injury or damage to business or property. The

> Applicant shall not discharge, cause, suffer, allow, or permit any emissions of objectionable odors beyond the property line of the premises.

28. Parties testified about possible impacts of crystalline silica which is a known carcinogen present in certain rock formations.. (Testimony of Sanders, Porter, McMullin and Henderson)

29. Test results of two rock samples obtained from test blasts, which were performed in the area of the proposed detention pond within Phase 1 at the project site, indicated that the sample stone was hard and had low silica content. The sample test results ranged from 27.7% to 32.5% according to Los Angelos Abrasion tests. Stone is considered hard when the percent wear is less than 40% (Applicant's Exhibit 7). Hard rock will produce less dust when crushed than a weaker, soft stone. While silica was present in the stone tested by the applicant, the amount of silica content was very small. (Applicant's Exhibit 7)

30. As found above in finding #8, the applicant anticipates that stone quality and type will vary throughout the phases of the quarry.

31. The applicant's air consultant testified that the ANR Air Pollution Division is very aware of the issue surrounding particulate silica and has required in-depth studies in other quarry applications, such as the Pike Industries quarry in Williamstown. ANR has not required a permit or any additional study in the case of this project. (Testimony of Guldberg and McCain)

32. All diesel heavy equipment used at the project will be outfitted with required air emission control devices including exhaust mufflers and catalytic converters. All federally regulated trucks are subject to the applicable emissions standards. (Applicant's Exhibit 3). Commencing in summer 2006, federal regulations require the removal of sulphur content in diesel fuel. (Testimony of Guldberg)

33. Wet suppression and other fugitive particle control mechanisms will be utilized as needed to comply with the Vermont Air Pollution Control Regulations. (Applicant's Exhibits 2, 3 and 6)

34. The access road will be treated with calcium chloride at least twice a year, and then with wet suppression as needed. (Applicant's Exhibit 3). There will also be a section of large cobblestones placed at the entrance to the project to help remove loose material from truck tires as they exit the site. (Applicant's Exhibits 3 and 4; and Testimony of McCain) During very dry periods, water may also be trucked onto the site for dust control. However, it is unlikely that will need to occur. (Testimony of Applicant's Witnesses McCain and Hanson and Applicant's Exhibits 3 and 15)

35. Hydraulic drills with be equipped with dust collectors or water misters and the crusher will be equipped with a pressurized water mist spray nozzle. (Applicant's Exhibit 3)

36. Stockpiled aggregate will periodically be treated with wet suppression to minimize storage pile emissions. Storage piles will be located within the quarry boundaries and as

such will be shielded to some extent from prevailing winds by the berm and quarry walls. (Applicant's Exhibit 3)

37. The applicant will inspect the intersection of the haul road and Route 100B on a daily basis and clean it as needed. (Testimony of McCain).

38. The project is subject to regulation by the Mine Safety Health Administration (MSHA). MSHA regulations require that workers be protected from particulate emissions without the use of breathing apparatus. (Testimony of McCain)

39. The detonation of explosives will generate air emissions in the form of dust. Properly designed and executed blasts will result in the rapid settling of the blasted material on the quarry floor. (Testimony of Rath and See overall findings for blasting under criterion 9(E)(i).

40. An air quality analysis of the impacts of diesel emissions and particulate matter dispersion modeling at the quarry site and at nearby residences was not performed because the Agency of Natural Resources did not require such an analysis under its regulations. (Testimony of Guldberg)

41. The water suppressant component of the stone crusher is intended to prevent any silica dust from traveling further than 10 feet. (Applicant's Exhibit 7)

42. The applicant's air quality consultant is familiar with the literature on the adverse effects of crystalline silica. He agreed that small or fine dust particles will leave the project site, a study of crystalline silica emissions was not performed because the Agency of Natural Resources did not require such an anlaysis under its regulations. (Testimony of Guldberg)

43. While the applicant's air quality consultant considered the prevalence of air inversions in his air quality study for the Moretown School (Applicant's Exhibit 5), the effects of inversions at the quarry site were not evaluated. (Testimony of Guldberg).

44. The approximate time for a truck to decelerate, enter the haul road, ascend and descend the haul road, exit the haul road and attain a 50 mph speed will be 4 minutes 50 seconds. Heavy trucks could be accessing the quarry nearly two-thirds of the time all day long on peak days. (Testimony of Oman and Parties Exhibit 37).

45. During the operations described in the previous finding, trucks produce the maximum of noise and air pollution, including emissions of fine particulate due to higher revving engines, higher power output and fuel consumption, and "jake braking". (Testimony of Oman and Parties Exhibit 37)

46. The proposed haul road, as well as the staging area will be within 225 feet of the Holden property line at the closest point. As found below under criterion 8, the Holden family frequent their land for walking, relaxation and hunting. (Applicant's Exhibit 4).

47. Agency of Natural Resources air quality regulations prohibit discharges or emissions which will cause injury, detriment, nuisance or annoyance to the public or which endanger the comfort, repose, health or safety of the public. Discharge or emissions of objectionable odors shall not extend beyond a project's property line. (Applicant's Exhibit 6).

48. Based on the frequency of air inversions in the Mad River Valley, it is possible that diesel exhaust and other emissions will extend off the project site.

49. Neither the applicant nor any party provided evidence on the prevailing winds at the project site.

Moretown Elementary School Air Quality

50. Trucks hauling from the quarry will result in diesel emissions. Some of the trucks traveling to and from the quarry will pass the Moretown Elementary School. The Town expressed concern about vehicle emissions in the vicinity of the school. (Applicant's Exhibit 5.

51. In response to concerns raised by the Town, the applicant conducted an air quality analysis in the area of the Moretown Elementary School. The study examined existing traffic and future traffic assuming that that quarry is operational. (Applicant's Exhibit 5 and Testimony of Guldberg)

52. The goal of the air quality study was to predict airborne concentrations of diesel particulate matter (PM), total coarse particulate matter with a diameter of 10 microns or less (PM_{10}), and total fine particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$). (Applicant's Exhibit 5)

53. The air quality study is based on conditions at the side of Route 100B in front of the Moretown Elementary School, where the impact of passing trucks would be the greatest. (Testimony of Guldberg)

54. The applicant's air pollution consultant conducted air pollution modeling, using Environmental Protection Agency ("EPA") dispersion models and methods and utilizing hourly meteorological data for a 5-year period, to assess whether the combined potential particulate emissions found above would create health problems at the Moretown Elementary School. (Testimony of Guldberg)

55. The study assumed a worst-case scenario by using measured background levels of air pollutants from Burlington, which reflect higher levels of urban air pollution. In addition, emissions data are based on peak day trip generation by large trucks versus as a mix of trucks and cars. The Burlington data overestimate conditions in Moretown (Testimony of Applicant's Witness Guldberg)

56. The most important measurement is the fine particulate matter ($PM_{2.5}$). Fine particulate does not settle as fast as larger particles. In Burlington the maximum 24-hour $PM_{2.5}$ level is 35.7 micrograms per cubic meter (:g/m^3). By comparison, rural numbers are lower, such as Bennington where the maximum 24-hour level is 28.7:g/m^3. All vehicles on Route 100B currently contribute 5.1:g/m^3. The quarry would increase this to 5.2:g/m^3, the increase being an insignificant amount of 0.1:g/m^3. The future maximum 24-hour $PM_{2.5}$ level at the school, including an assumed urban background of 35.7:g/m^3, is 40.9:g/m^3. The EPA standard is 65 micrograms per cubic meter. (Applicant's Exhibit 5 and Testimony of Guldberg)

57. The highest predicted annual $PM_{2.5}$ concentration from all vehicles on Route 100B is presently 1.3:g/m^3, and with the quarry traffic in the future this level would still be 1.3:g/m^3. Adding the background $PM_{2.5}$ concentration of 10.5:g/m^3 gives a total annual level of 11.8:g/m^3, less than the NAAQS of 15:g/m^3. (Applicant's Exhibit 5 and Testimony of Guldberg)

58. The modeling results for the future condition with the quarry predict Annual Diesel PM, 24-hour PM_{10}. Annual PM_{10}, 24-hour $PM_{2.5}$ and Annual $PM_{2.5}$ values of 1.0 :g/m^3, 72.0:g/m^3, 24.8:g/m^3, 40.9:g/m^3, and 11.8:g/m^3, respectively. These are all far below the EPA health standards of 5.0:g/m^3, 150:g/m^3, 50:g/m^3, 65:g/m^3, and 15:g/m^3. (Applicant's Exhibit 5 and Testimony of Guldberg)

59. The EPA air quality standard has set a reference concentration for diesel PM and has established National Ambient Air Quality Standards (NAAQS) for PM_{10} and $PM_{2.5}$ to protect the most sensitive populations from adverse health effects with a margin of safety. (Applicant's Exhibit 5 and Testimony of Guldberg)

60. The applicant's air pollution consultant assumed worst-case meteorological conditions and assumed that those conditions coincided with peak daily existing traffic and peak quarry truck traffic. Under the worst case scenario studied by the applicant, the increase in diesel, fine and coarse particulate matter resulting from the increased truck traffic generated by the project would all still be well within the applicable EPA standards. (Applicant's Exhibit 5 and Testimony of Guldberg)

61. The air quality study assumed a worst case scenario - that all 54 daily truck loads (108 vehicle trip ends) would pass by the Moretown Elementary School. As discussed in the findings under Criteria 5 and 9(K), it is unlikely that there will be 108 new truck trip ends passing through Moretown Village from this project. This is because some stone demand will come from points north of the project and some trips from the project taking stone to points in the Mad River Valley south of Moretown Village will be replacing existing truck trips carrying stone to the Mad River Valley from quarries in Williamstown, Barre, Berlin and other sources of crushed stone in Central Vermont. (Testimony of McCain and Dickinson; Applicant's Exhibits 2 and 3)

CONCLUSIONS

In order to issue a permit, the Commission must find that the project will not result in undue air pollution. 10 V.S.A. §6088(a)(1). The applicant bears the evidentiary burdens of production and proof under criterion 1(Air) to demonstrate that undue air pollution will not result. 10 V.S.A. §6088(a).

There is no clear definition of what constitutes undue pollution. *Re: Pike Industries, Inc. and Inez Lemieux*, #5R1415-EB, (June 7, 2005). Whether a pollutant is undue depends on factors such as the quantity and quality of the pollutant, the surrounding area, whether the pollutant level meets applicable standards, and what mitigation measures are available and in place. *Re: McLean Enterprises Corporation*, #2S-1147-1-EB, (November 24, 2004). The Environmental Board decisions are fact specific and more instructive about *what is not* undue rather than what is. *See, e.g., Re: Mark and Pauline Kisiel*, #5W1270-EB, (Altered) (August 7, 1998); *Re: City of Montpelier and Packard*, #5W0840-6, (May 22, 2000). The Board has, however, defined "undue" with respect to Criterion 1 as "that which is more than necessary – exceeding what is appropriate or normal. *Re: Brattleboro Chalet Motor Lodge*, #4C0581-EB, (October 17, 1984).

Project Site

The Department of Environmental Conservation has determined that the project as proposed does not require an Air Pollution Control Permit. The principal sources of air pollution will be diesel emissions from dump trucks and quarry equipment and from dust particulate matter. The capacity of the crusher that will be used on the site will either be below the threshold requiring an individual permit or will be individually permitted by the Department prior to arriving on site.

The District Commission will include the conditions requested by the Agency of Natural Resources (see finding #27) in any land use permit issued in this matter. However, the evaluation of potential impacts from this project requires further consideration by the District Commission.

The Environmental Board's final decision with respect to a quarry proposal was the *McLean Enterprises Corporation* decision cited above. In *McLean*, the Board cited many of the precedents referenced above in this decision and, based on the record in that case, then stated:

> ….the Permittee's modeling did not include the emissions and noise from the construction of the access road and quarry of the hillside. The Board agrees that the Permittee did not provide any data whatsoever regarding the impacts to the air quality of the neighboring properties during the 2 to 4 construction seasons of access road construction and quarrying of the hillside. Air pollution that occurs during construction as well as during operation is subject to review. *In re: Barre Granite Quarries, LLC Williams and Margaret Dyott*, #7C1079 (Revised)-EB, at 67 (December 8, 2000)… Based on the foregoing, the Board concludes that the Permittee has not met its burden of proof under Criterion 1 (air) with respect to air pollution generated during the construction of the access road and quarrying of the hillside. (*McLean* at page 42)

McLean was a proposal for the quarrying of marketable stone for processing out-of-state. Three quarry areas were proposed on that site (North, South and Hillside). An annual extraction rate of 10,000 cubic yards of finished product was specified and thirty percent, unsuitable for structural product, would be crushed. Applicant *McLean* performed air quality modeling for the North and South quarries and the Board reached affirmative conclusions. However, the applicant did not model air pollutants for the Hillside quarry (40,000 cubic yards to be extracted during access road construction) and, therefore, the Board reached negative conclusions.

The case before the District Commission is subject to the to *McLean* precedent.***** While the applicant has provided details on sources of air pollutants and proposed methods of control and mitigation, the record does not include any data regarding the impacts on at least the closest residences – Holden, Sanders, Farley/Byrne, McMullin and Hendrickson. The evidence reflects some opinion on silica content based on two rock samples yet the applicant acknowledged that rock quality and type is likely to differ throughout phases. The applicant proposes to suppress dust at stockpiles but no details for water distribution or spraying were provided. The Commission acknowledges later phases will be more distant from residences. However, absent modeling there is an inadequate factual basis to support positive conclusions at this time. The Commission is also concerned that the applicant did not provide essential information on prevailing winds and failed to have its expert address the air inversion factors raised by the parties. Accordingly, the District Commission must conclude that the applicant has not met its burden of production with respect to the potential for undue air pollution from the project site.

Moretown School

The evidence relating to the potential harmful effects of diesel emissions at the Moretown Elementary School demonstrates that the project will meet the EPA standard. The applicant's modeling showing that the increases in PM, PM_{10} and $PM_{2.5}$ concentrations from the addition of up to 108 heavy trucks per day is well within the established EPA safety standard for those pollutants.

* The District Commission observes that there are also factual dissimilarities between *McLean* and the present case with respect to distances between the proposed quarry operations and surrounding residences. In *McLean* the residences would have been in closer proximity to the quarry operations than would be the residences to the *Rivers* quarry. [See findings under criteria 3, 8 and 9(E) with respect to distances between the proposed *Rivers* quarry and the parties' residences/lands]

Additionally, the Commission is satisfied that the results presented in the air quality report by the applicant's consultant are conservative in that the background data used is from an urban setting where existing pollution levels for the applicable parameters are higher than in a setting such as Moretown. The modeling also assumed the maximum possible project traffic, with no interception of existing traffic flow passing by the Moretown Elementary School on a daily basis. Finally, the modeling assumed worst-case meteorological conditions and that those conditions coincided with peak daily existing traffic and peak quarry truck traffic. Under the worst case scenario studied by the applicant, the increase in diesel, fine and course particulate matter resulting from the increased truck traffic generated by the project would all still be well within the applicable EPA standards. The foregoing conclusions must be balanced against the Town's speculation that the project will aggravate conditions in the fifth and sixth grade classrooms. In this regard, the Commission finds that the National Ambient Air Quality Standards (NAAQS) are designed to protect the most sensitive members of the population from adverse health effects with a margin of safety.

The predicted highest daily PM_{10} and $PM_{2.5}$ concentrations are significantly lower than the NAAQS. Annual results are also significantly lower than the NAAQS. Similarly, the predicted PM values are significantly lower than the EPA reference concentration. Therefore, the Commission concludes that the project will not cause undue air pollution with respect to the Moretown School.

SECTION 6086(A)(1) WATER POLLUTION

SECTION 6086(a)(1)(A) (HEADWATERS)

62. The project is located at elevations ranging from approximately 635 to 1020 feet above mean sea level with the quarry operations area ranging from 820 to 1030 feet. The treated discharge from the detention pond will flow westerly from the pond. The spillway will impact 2,919 square feet of a Class III wetland. No gasoline, motor oil, diesel fuel, radiator coolant, hydraulic fluids or explosives will be bulk stored at the project. Removal of sediment and suspended solids from stormwater will be achieved within the stormwater settling pond. The Commission incorporates detailed findings under criterion 1(B), 1(E) and 1(G). (Applicant's Exhibit 3).

CONCLUSIONS

The Commission will grant a permit whenever the applicant demonstrates that, in addition to all other applicable criteria, the development or subdivision will meet any applicable health and environmental conservation department regulations regarding reduction of the quality of the ground or surface waters flowing through or upon lands which are not devoted to intensive development, and lands which are:

(i) headwaters or watershed characterized by steep slopes and shallow soils; or
(ii) drainage areas of 20 square miles or less; or
(iii) above 1,500 feet elevations; or
(iv) watersheds of public water supplies designated by the Vermont Department of Health; or

(v) areas supplying significant amounts of recharge waters to aquifers.

10 V.S.A. §6086(a)(1)(A). The applicant bears the burden of proof under Criterion 1(A). 10 V.S.A. § 6088(a).

This project is not located in a headwaters area because it is not situated in a drainage area of 20 square miles or less, is not above the elevation of 1,500 feet, is not in the watershed of a public water supply, and is not in an aquifer recharge area. The project design satisfies criterion 1(A)

SECTION 6086(a)(1)(B) (WASTE DISPOSAL)

63. The project involves a number of stormwater runoff/water quality and water supply measures that are also relevant under criteria 1(B), 1(E), 2, 3, and 4, therefore all findings under criterion 1(B) are incorporated by reference under the other criteria.

64. No in-ground wastewater disposal system is proposed. The project will use on site chemical toilets for the proposed office building and employees. The project was issued Wastewater System & Potable Water Supply Permit WW-5-3383 by the Department of Environmental Conservation for the use of a chemical toilet for 6 employees. (Applicant's Exhibit 33)

65. Stumps resulting from tree clearing on the site will be disposed by integration in the berm to be constructed at the operational area of the quarry. A permit from the Solid Waste Division is not required. All other debris will be either recycled or disposed at a State approved location. (Applicant's Exhibits 3 and 4; Testimony of McCain)

66. The project does not require a hazardous waste disposal permit from the Department of Environmental Conservation. The applicant is required to register and obtain a Hazardous Waste Site identification number, but only at such time as the project is about to commence operations. (Applicant's Exhibit 45).

67. All pollutants such as gasoline, motor oil, diesel fuel, radiator coolant, and hydraulic fluids will not be stored at the site. All such fluids will be brought to the site when required for use and then the remainder removed from the site after use. Any fluids removed from onsite equipment will be transported off site for proper disposal. The project is not located in a Public Water Source Protection Area. (Applicant's Exhibit 3)

68. The total impervious surface associated with this project as defined by Department of Environmental Conservation stormwater regulations is 0.75 acres including the haul road and an office trailer. (Applicant's Exhibits 4 and 12 and Testimony of Nelson and McCain) The applicant has designed the quarry to meet the technical design criteria of the requirements of the ANR General Permit 3-9015 and the requirements of the 2002 Vermont Stormwater Management Manual ("VSWMM") as they apply to the portion of the project site that is to be quarried. (Applicant's Exhibits 12 and 42 and Testimony of Nelson and Reinhart)

69. The primary stormwater treatment practice on the site will involve grading the quarry floor so that drainage is conveyed via sheetflow and reinforced channels into a

stormwater detention pond (variant P-2 of the VSWMM) that will be excavated into the bedrock of the quarry floor. The stormwater pond will contain a sedimentation forebay, which will allow for settling of sediments, with overflow of water then draining from the forebay into the main portion of the permanent detention pond prior to being recycled and used in quarry operations or being discharged to overland flow. (Applicant's Exhibit 73 and Testimony of Nelson and McCain)

70. Rock and grass lined swales along with overland flow through vegetated areas will assist in managing stormwater runoff. The sediment ponds are designed to accept projected quantities of water during peak rainfall. (Applicant's Exhibit 4 and Testimony of McCain)

71. Drainage areas and affected watercourses are specified and shown in applicant's Exhibits 42, 43 and 57.

72. The stormwater detention pond will be constructed in two stages as the project progresses. The stage 1 pond has been designed to meet the Overbank Flood Control Standard per section 1.1.4 of the VSWMM as it pertains to the site's primary discharge point (S/N 005). The stage 2 pond has been designed to meet the Extreme Flood Protection Treatment Standard per section 1.1.5 of the VSWMM as it pertains to the site's primary discharge point (S/N 005). The final design of the stage 1 pond will have a maximum impoundment volume of 618,000 gallons of water. The stage 2 pond will have a maximum impoundment volume of 1,134,800 gallons of water. (Applicant's Exhibits 73 and 97)

73. Neither the stage 1 nor stage 2 stormwater detention ponds for the project require authorization from the Department of Environmental Conservation Dam Safety Division, which requires approval for any impoundment capable of impounding 500,000 cubic feet of water. There are approximately 7.48 gallons of water in one cubic foot. Therefore the volume of the Stage 1 pond is only 82,610 cubic feet, and the volume of the Stage 2 pond is 151,700 cubic feet; both well below the jurisdictional threshold. (Applicant's Exhibit 97)

74. The stormwater detention pond will be enlarged to its full Stage 2 size in approximately fifteen (15) years, at the completion of Phase 4. (Testimony of McCain). As found above in finding #8, the quarry will not necessarily be developed in the numerical sequence shown on the plans.

75. The two stages of the stormwater detention pond will be created by excavating into existing surrounding bedrock. Because the basins will not be constructed with an earthen dam or embankment, no breach analysis is necessary. The bedrock surrounding the basin will prevent a breach from occurring. (Applicant's Exhibit 74)

76. The applicant's consultant prepared an inspection and maintenance plan for the stormwater ponds. The plan involves the elements required of a project receiving coverage under General Permit 3-9015, for new stormwater discharges to waters that are not principally impaired by collected stormwater runoff. The required elements listed in the general permit include the following, as modified from Part II and Part V of the

general permit to be included as conditions to the land use permit as stipulated by the applicant: (Applicant's Exhibit 74)

i. Designer's Statement of Compliance at Completion of Construction

Within thirty (30) days of the completion of construction of the permitted stormwater management system, the applicant will submit to the District Commission a written statement signed by a designer that the stormwater management system was built and is currently operating in compliance with the approved exhibits.

ii. Operation and Maintenance of Stormwater Management System

The applicant will at all times properly operate, inspect and maintain all stormwater collection, treatment and control systems. The applicant will use the operation, maintenance and inspection checklists provided by the ANR. The facility shall at no time contribute to a violation of the terms, conditions, requirements, limitations and restrictions specified by Stormwater General Permit 3-9015.

iii. Proper Disposal of Solids

Solids, sediments and other pollutants collected and removed in the course of treatment or control of stormwater runoff shall be disposed of in a manner to prevent any pollutant from entering waters or wetlands.

iv. Semi-Annual Inspection and Report

The stormwater collection, treatment and control system will be properly operated and maintained and will be inspected at least twice per year, once in the spring after snow melt, and once in the fall prior to snow fall. The inspection will evaluate the operation, maintenance and condition of the stormwater collection, treatment and control system. The applicant will prepare a semiannual inspection report on a form provided by the ANR regarding the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report will note all problem areas and all measures taken to correct any problems and to prevent future problems. The applicant will, by December 1ST and June 1ST of each year, submit a copy of the inspection report to the District Commission.

v. Designer's Re-Statement of Compliance

In accordance with a schedule provided in the authorization to discharge, athe applicant will submit to the District Commission a written statement signed by a designer that the stormwater collection, treatment and control system is properly operating and maintained. Failure to submit a designer's re-statement of compliance will constitute a violation of the land use permit and may result in revocation of the permit.

vi. Corrective Action

Any erosion or associated discharge of sediment from the stormwater collection, treatment and control system shall be corrected immediately. Any deficiencies noted during inspections shall be corrected as soon as possible, but no later than thirty (30) days after detection.

vii. Record Keeping

The applicant will retain on-site a copy of all written records relating to the stormwater collection, treatment and control system, including but not limited to calculations used to size STPs, until further notice by the District Commission. The applicant shall make such records available to the District Commission upon request.

viii. Changes to a Permitted Development

The applicant will notify the District Commission of any proposed changes that may result in new or increased stormwater discharges. The District Commission will require the permittee to submit additional information on the proposed changes.

77. The applicant performed a 100-year stormwater analysis at the request of the District Commission. At each of the seven discharge locations (S/N 001 – S/N 007) there is either no change or a reduction in peak discharge for the 10-year storm. For the 100-year storm there is either no change or a reduction at six out of the seven discharge points and only a 1.9% increase at S/N 005. Thus, the overbank storm (Q_{10}) and extreme storm (Q_{100}) criteria of the VSWMM are almost entirely met. (Applicant's Exhibits 74 and 94)

78. The stormwater detention pond will also serve as the water supply for dust suppression for roads, stock piles and crushing operations. In order to ensure an adequate non-potable water supply for the project, the permanent pool volume will be approximately 118,340 gallons for the Stage 1 pond. As the floor area increases, the stage 2 permanent pool volume will be approximately 235,230 gallons. The sedimentation forebay of the pond, in conjunction with the EPSC measures detailed on the EPSC plan sheets, will filter sediments out of the runoff, protecting water quality. Overflow from the forebay will be collected in the main pond portion of the stormwater detention pond and this water, less the suspended solids, will be recycled and used for processes associated with the quarry, including control of fugitive particulate matter. (Applicant's Exhibit 15)

79. Accumulated stormwater that exceeds the permanent pool elevation will be released slowly from the detention pond so that the post-development runoff rate will be equal to or less than the pre-development runoff rate, ensuring that there are no adverse impacts downslope of the site. (Applicant's Exhibits 12, 42, 43, 57, 74 and 94)

80. At the June 27, 2006 site visit, which was preceded by several days of heavy rain, the District Commission observed that the outflow at S/N 006 was greater than the outflow

at S/N 007. The applicant's modeling showed that there is an approximate difference of 20 to 25% in expected outflow between the two pipes. Irrespective of the difference between the modeled outflow and the actual outflow, the overall conclusion stands that once the project is developed the flows at both S/N 006 and S/N 007 will be the same as they are today for the 10-year storm event and will be reduced by approximately 3% during a 100-year storm event. (Testimony of McCain and Exhibit 94)

81. The project does not require a Direct Discharge Permit or a Stormwater Operational Phase Discharge Permit from the Department of Environmental Conservation. (Applicant's Exhibits 8 and 11)

82. The project requires a Stormwater Construction General Permit from Department of Environmental Conservation and the Department issued authorization to discharge under General Permit 3-9001 on February 7, 2006. (Applicant's Exhibit 44)

83. The Department of Environmental Conservation issued an "Interim Procedure for Permitting Stormwater Discharges through the Underground Injection Control (UIC) Program." An UIC Permit is required for this project because the stormwater detention pond is lined with an impervious layer of clay up to the normal water level, with potential infiltration of water that is stored in the pond above the normal water level. Under the Interim Procedure an Indirect Discharge Permit is not required. A UIC application was filed with the Department on May 5, 2006, and is under review by the Department. (Applicant's Exhibits 72 and 73 and Testimony of Hanson; Also See Applicant's Exhibit 9)

84. At the time of the District Commission's hearings, the Department had issued a draft of the Multi-Sector General Permit ("MSGP"), which is a federally mandated National Pollutant Discharge Elimination System ("NPDES") permit that covers new and existing discharges of stormwater associated with certain types of industrial activity. The MSGP will protect water quality by requiring that the regulated industrial activities undertaken by both private and municipal entities be conducted in a manner that prevents and minimizes contamination of stormwater runoff. Coverage under the MSGP will be required for the project, once the MSGP is adopted by the Department. (Applicant's Exhibit 74 and Testimony of Nelson and Reinhart)

85. The Applicant prepared an outline of the Stormwater Pollution Prevention Plan ("SWPPP"), which will be required when the draft MSGP is adopted in final form. (Applicant's Exhibit 74 and Testimony of Nelson and Reinhart)

86. The District Commission takes administrative notice that the Department of Environmental Conservation issued MSGP 3-9003 in final form on August 18, 2006. Under applicable regulations, this project must apply for coverage 90 days prior to commencing activities on the site.

87. A commercial general liability policy will be put in place to cover quarry operations as a whole, including the stormwater ponds. (Applicant's Exhibit 65)

CONCLUSIONS

The Commission will grant a permit whenever the applicant demonstrates "that, in addition to all other applicable criteria, the [project] will meet any applicable health and environmental conservation department regulations regarding the disposal of wastes, and will not involve injection of waste materials or any harmful or toxic substances into groundwater or wells." 10 V.S.A. § 6086(a)(1)(B). The burden of proof is on the applicant under criterion 1(B).

The applicant has obtained a Wastewater System & Potable Water Supply Permit for the use of a chemical toilet for 6 employees at the project. This creates a rebuttable presumption under NRBR 19(E). The project does not require a Direct Discharge Permit from the Department of Environmental Conservation. The project requires a Stormwater Construction General Permit from the Department, and the Department issued authorization to discharge under General Permit 3-9001. This also creates a rebuttable presumption under NRBR 19(E). The project does not require any hazardous waste disposal permit from the Department. The applicant is required to register to obtain a Hazardous Waste Site identification number, but only at such time as the project is about to commence.

The project does not require a Stormwater Operational Phase Discharge Permit from the Department. Nonetheless, the applicant has designed the area of quarry operations to be in compliance with the requirements of General Permit 3-9015 (Stormwater Discharges for New Development and Redevelopment to Waters Not Principally Impaired by Stormwater) and the requirements of the 2002 Vermont Stormwater Management Manual (VSWMM).

The applicant indicated that the stormwater pond would be enlarged to its full stage 2 size at the completion of Phase 4. The District Commission assumes that this design standard is premised on the extent of the quarry footprint that would result if the quarry area was developed through phases 1-4 as shown on the plans. However, this design standard is not certain in consideration of the fact that the quarry will not necessarily be developed in the numerical sequence of phases shown on the plans. Therefore, by permit condition, and within 15 days of issuance of this decision, the applicant must provide a submittal clarifying the design standard and the construction schedule for the enlargement of the pond to full stage 2 size. An additional permit condition will require that the applicant correct within 10 days – not 30 days – any deficiencies in the stormwater collection, treatment and control system as may be detected during the site inspections. (See finding #76 at section vi).

The Department has issued Multi-Sector General Permit (MSGP), which is a federally mandated National Pollutant Discharge Elimination System (NPDES) permit that covers new and existing discharges of stormwater associated with certain types of industrial activity. Coverage under the MSGP will be required for the project. Even though the applicant has not yet applied for coverage under the MSGP, the applicant has prepared an outline of the Stormwater Pollution Prevention Plan (SWPPP). At such time as the MSGP becomes effective, the applicant must obtain coverage under the MSGP and shall file evidence of such coverage with the Commission.

On March 28, 2006, the Department issued an "Interim Procedure for Permitting Stormwater Discharges through the Underground Injection Control (UIC) Program." A UIC Permit is

required for this project because the stormwater pond is only partially lined with an impervious layer of clay; water in the pond over the liner will have some infiltration. An application was filed with the Department on May 5, 2006, and is under review. A copy of the UIC Permit application was submitted by the applicant. The applicant's consultant provided testimony indicating its belief that the permit will be granted. No contrary testimony or evidence regarding the UIC permit application was offered by the parties.

The applicant has proceeded without the benefit of an evidentiary presumption arising from a UIC Permit. This is permissible with the approval of the Commission and with an "intention to satisfy certain substantive criteria of the Act with independent evidence of compliance." NRBR 19(A)(3). The applicant requested permission to proceed under NRBR 19(D). Under NRBR 19, the applicant must meet its burden of proof by "offering affirmative evidence through testimony, exhibits and other relevant material upon which the District Commission can make findings of fact and conclusions of law." NRBR 19(D). This Commission and the former Environmental Board have, in the past, allowed applicants to meet the burden of proof under criterion 1(B) and other criteria rather than rely on presumptions created by permits issued by the Department. The Commission may then issue a land use permit conditioned upon the applicant's obtaining the permit and filing the same with the Commission.

The Commission concludes that, based upon the foregoing findings of fact, that the applicant has met its burden with respect to the UIC Permit. The Commission concludes that the project meets all applicable health and environmental conservation department regulations and will not involve the injection of waste materials or any harmful or toxic substance in groundwater or wells. The Commission will require that the applicant obtain a permit under Department's Underground Injection Control Program and that the applicant obtain a Hazardous Waste Site identification number.

SECTION 6086(a)(1)(C) WATER CONSERVATION:

88. The majority of the runoff on site will flow into the sediment ponds and be recycled following treatment in the sedimentation forebay and detention pond. (Applicant's Exhibits 2 and 33 and Testimony of McCain)

CONCLUSIONS

Therefore, the Commission concludes that the project utilizes the best available technology for water conservation,

SECTION 6086(a)(1)(D) FLOODWAYS:

89. The project is neither in nor adjacent to a 100-year floodway or floodway fringe.

CONCLUSIONS

The project is not located in a floodway or floodway fringe. The Commission concludes that the applicant has met its burden under Criterion 1(D).

STREAMS 6086(a)(1)(E) STREAMS:

90. There is an unnamed perennial stream on the southwest portion of the parcel. The nearest quarry disturbance is approximately 450 feet away. Neither the stream, nor the lands along it, will be impacted by this project. No alteration of the stream channel is proposed. (Applicant's Exhibits 3 , 4 and 15)

CONCLUSIONS

The Commission will grant a permit whenever the applicant demonstrates "that, in addition to all other applicable criteria, the development or subdivision or lands on or adjacent to the banks of a stream will, whenever feasible, maintain the natural conditions of the stream, and will not endanger the health, safety, or welfare of the public or of adjoining landowners." 10 V.S.A. § 6086(a)(1)(E). The burden of proof under criterion 1(E) is on the applicant.

"Stream" is defined as "a current of water which is above an elevation of 1,500 above sea level or which flows at any time at a rate of less than 1.5 cubic feet per second." 10 V.S.A. § 6001(18). There is a stream located on the southwest portion of the project tract. None of the quarrying activities will take place on or adjacent to the banks of the stream. No development of the tract is proposed on or adjacent to the banks of the stream.

Based upon the foregoing findings of fact, the Commission concludes that there will be no adverse impact upon the stream.

SECTION 6086(a)(1)(F) SHORELINES:

91. There are no rivers, lakes, ponds, or reservoirs within the project tract. (Exhibits 3 and 4)

CONCLUSIONS

Therefore, the Commission concludes that this project will not be located on any shoreline.

SECTION 6086(a)(1)(G) WETLANDS:

92. There are no Class One or Class Two wetlands on the project tract. (Applicant's Exhibits 13 and 14)

93. There is a Class Three wetland located on the project site. Overflow from the stormwater pond will drain into the Class Three wetland. The spillway constructed to channel the overflow will impact 2,950 square feet of the wetland. The Water Quality Division has determined that the treated overflow will not have an adverse impact on the function of the Class Three wetland. (Applicant's Exhibits 13 and 14)

CONCLUSIONS

Therefore, the Commission concludes that this project will not violate the rules of the Water Resources Board relating to significant wetlands.

SUMMARY CONCLUSIONS

Under Criterion 1, the Commission must find that the project will not result in undue water pollution. The burdens of production and proof under criterion 1 (Water) are on the applicant. 10 V.S.A. 6088(a).

The Commission must determine whether undue water pollution would result from quarrying activities, from the refueling and maintenance of diesel equipment or from stormwater runoff and blasting residuals. There is no specific definition of "undue water pollution." in Act 250. *Re: Mark and Pauline Kisiel*, #5W1270-EB, (Altered)(Aug. 7, 1998). The term "undue water pollution" is interpreted in the context of specific facts of each case. *Re: Upper Valley Regional Landfill*, #3R0609-EB, at 32 (Nov. 12, 1991). The Commission must consider the elevation of the project, the relationship between the project and floodplains, the topography of the project tract, the characteristics of the ground cover and capacity of nearby stream, and applicable regulations.

Potential sources of water pollution which could result from the quarrying activities include: (1) sediment contained in the stormwater detention pond forebay and the stormwater detention pond; (2) fuel which is brought on site to fill the quarry equipment; (3) wastewater; (4) residual blasting compounds and related materials.

The applicant has proposed to periodically assess the hydrogeologic impacts of the Project through its well testing plan. The applicant will install and maintain adequate erosion control and stormwater management infrastructure. Water related monitoring and filings will be provided to the Department of Environmental Conservation Wastewater Management Division with respect to the UIC permit and in the future to the Water Quality Division with respect to MSGP. Blasting materials will not be stored on site. Blast design is such that the vast majority of all blasting compounds are consumed in the detonation. Based upon the foregoing, the Commission concludes that the project will not result in undue water pollution.

Water impacts are discussed in detail below and incorporated herein by reference. The Commission concludes that the project as planned will not result in undue water pollution.

SECTION 6086(a)(2) WATER AVAILABILITY

94. The District Commission incorporates by reference all findings stated above for criterion 1(B) with respect to stages 1 and 2 of the stormwater detention pond.

95. The source of the potable water for the quarry employees will be bottled water. There will be no onsite source of drinking water. The project will use non-potable water for dust suppression activities during the quarry season. The non-potable water supply and the stormwater management system are linked. (Applicant's Exhibit 15 and Testimony of Hanson)

96. The source of non-potable water for quarry operations will be stormwater runoff which will be collected in the stormwater detention pond. (Applicant's Exhibit 15 and Testimony of Hanson)

97. The stage 1 stormwater detention pond has a minimum permanent pool capacity of 118,340 gallons and will be lined up to the permanent pool elevation to prevent infiltration below the permanent pool elevation and in turn allow for storage of an adequate supply of water for use in quarrying operations. (Applicant's Exhibit 15 and Testimony of Hanson)

98. The permanent pool of both the Stage 1 and Stage 2 stormwater detention ponds will be lined with a 6-inch layer of impervious clay. (Testimony of McCain and Rinehart)

99. The water level in the pond will not be static. It will be recharged with precipitation and stormwater runoff from the quarry site. (Applicant's Exhibit Exhibit 15 and Testimony of Hanson)

100. The predominant use of water will be when the rock crusher is in operation. There will also be a small volume of water used for other dust suppression needs. In a full 10-hour day, the proposed crusher can crush up to 1,000 cubic yards of rock. When doing so, the crusher will utilize approximately 1.8 gallons of water per minute, or 1,080 gallons per day. At that rate, the entire annual volume of crushed rock material would be crushed in 75 days out of a possible 175 day operating season (weekdays from April 15 through December 15). (Applicant's Exhibit 15 and Testimony of Hanson)

101. The primary dust suppression control for the haul road will be two applications of calcium chloride each year. Water suppression will be used when needed for the haul road, and also as needed for the stockpiles and quarry floor. It is not expected that more than 200 gallons per day would be required for these purposes. (Applicant's Exhibits 3, 15 and 40 and Testimony of Hanson)

102. The resulting daily maximum water consumption (crushing and watering) would be less than 1,300 gallons per day ("gpd"), with a total annual demand of 123,000 gallons. The daily average would be 703 gpd. (Applicant's Exhibit 40 and Testimony of Hanson and McCain)

103. Based on National Weather Service data for Montpelier, the recharge to the Stage 1 stormwater pond would be not less than 530,000 gallons of runoff per year, based on the driest year on record for Montpelier and a drainage area of 5 acres. The stage 2 pond, with a contributing drainage area of 10 acres, will be recharged with approximately 1.1 million gallons annually. The lower of those two numbers is more than four times the annual volume of water required for the project's estimated dust suppression needs. The applicant's consultant assumed a conservative runoff rate of only 22% (i.e. only 22% of stormwater would runoff and the balance would be absorbed). This driest year analysis also does not account for rain days during the operating season when no water would be required for dust suppression purposes. (Applicant's Exhibits15 and 40 and Testimony of Hanson)

104. In a year of average precipitation the stormwater detention pond would be recharged with approximately 1.6 million gallons of runoff over the course of the quarry operating season. Thus, in a year of average rainfall there will be more than thirteen times the annual volume of water required for the project's dust suppression needs. While some runoff from dust suppression will flow back into the pond, this was not included in recharge calculations. (Applicant's Exhibit 15 and Testimony of McCain and Hanson)

CONCLUSIONS

Before issuing a permit, the Commission 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 under Criterion 2 is on the applicant.

The source of potable water for human consumption will be bottled water. There will be no onsite source of potable water.

The primary use of water will be during the operation of the rock crusher. There will also be a volume of water required for other dust suppression needs. The applicant's estimate is that the resulting daily maximum water consumption (crushing and watering) will be less than 1,300 gallons per day ("gpd"), with a total annual demand of 123,000 gallons. The applicant does not propose withdrawing any ground water for its water supply. The source of water for the project will be the stormwater pond. With an operating season recharge of at least .53 million gallons for the Stage 1 pond and 1.1 million gallons for the Stage 2 pond, there is more than adequate water to meet the project's reasonably foreseeable needs. Should the ponds prove to be an inadequate supply for the overall dust suppression needs of the project, the District Commission shall be notified and an alternative source will be subject to appropriate amendment application review.

The Commission finds that the applicant has met its burden of proof in showing that there is an adequate supply of water to meet the reasonably foreseeable needs of the development.

SECTION 6086(a)(3) BURDEN ON EXISTING WATER SUPPLIES:

105. A hydrogeologic investigation has been performed at the project site by the applicant to determine the potential impacts to groundwater that may result from the project and also to determine the prevalence of ground water at the project site. (Applicant's Exhibit 15)

106. The quarry floor will be established at an elevation of 820 feet above sea level, with a maximum height reached during phase 6 of approximately 1030 feet above sea level, resulting in the removal of approximately 210 vertical feet of material at the project's westernmost edge. (Applicant's Exhibit 2 and Testimony of McCain)

107. There are 11 residences with associated water supplies within a 2,000-foot radius of the project, all with wellhead elevations at least 105 below the bottom of the quarry floor. (Applicant's Exhibits 2 and 15)

Residence	Linear Distance	Wellhead Elevation	Elevation Difference
(1) Holden	720	650	170
(2) Beattie	910	620	200
(3) Hendrickson	1,000	580	240
(4)Porter	1,070	560	260
(5)Farley/Byrne	1,110	570	250
(6)McMullin	1,230	570	250
(7)Sanders	1,250	600	220
(8)Trepto	1,470	600	220
(9)Falkenbush	1,770	570	250
(10)Samson	1,750	600	220
(11)Clark	1,825	715	105

108. Only two wells are closer than 1,000 feet to the project, with wellhead elevations of 170 and 200 feet below the quarry floor respectively. One wellhead is approximately 100 feet in elevation below the quarry floor elevation of 820 feet but this well is 1,825 linear feet away. The other nine wells are between 200 and 260 feet below the bottom elevation of the quarry floor. (Applicant's Exhibits 2, 15 and 59 and Testimony of Hanson and McCain)

109. In addition to analyzing the proximity and elevations of nearby wells, the applicant's hydrogeologist conducted a fracture trace analysis of the project tract in order to detect the presence of fractures in the bedrock which might indicate the presence of groundwater. This analysis revealed a paucity of notable fractures and indicates there is a low likelihood of encountering significant groundwater yields in the bedrock aquifer at the proposed quarry site, and a low potential for interconnection with off-site bedrock wells. (Applicant's Exhibit 12 and Testimony of Hanson)

110. The applicant's hydrogeologist located several fractures along the southern boundary of the Project limits, and also a fracture passing through the project area along the eastern edge in a southwest to northwest direction. A test well was drilled near the lowest point of this fracture. In the applicant's hydrogeologist's opinion this location is the most likely place to intercept groundwater. The bottom of the test well was drilled to a depth of 202 feet, and approximately 175 feet below the quarry floor. The bottom of the test well is above the top of any well within 2,000 feet with the exception of the Clark well which is 1,825 linear feet away. No reportable water flow was found in the test well. This supports the conclusion that the project site contains a poorly developed fracture network. (Testimony of Hanson and Applicant's Exhibit 15)

111. The quarry is well situated hydrologically because it is at the top of a hillside, has a limited groundwater recharge area, and it is located a "bony shoulder," meaning it tends to shed rather than absorb water. (Testimony of Hanson)

112. Because the quarry floor is several hundred feet above the top of neighboring wells, the applicant's hydrogeologist testified that it is unlikely that blasting will impact neighboring water supplies. In order to impact those water supplies, the blast would

have to affect the fractures which charge those supplies, which is an unlikely event given the rock mass between the quarry floor and the top of the wells. (Testimony of Hanson)

113. In order for blasting to have a negative impact on wells, permanent ground deformation must occur. Permanent deformation is unlikely give the mass of bedrock lying between the high point of the wells and quarry floor and due to the significant vertical and horizontal distances between the wells and quarry operations. Furthermore, the energy from the blasts will take the path of least resistance which is up and out, not down into bedrock. (Testimony of Rath)

114. Prior to the commencement of the project, each existing well within a 2,000-foot radius of the center of site operation will be tested with the owners' permission for quality and quantity to establish baseline data for those water supplies. Testing would take place in each of the first three years of quarrying operations, again in the fifth year, and then every five years thereafter. (Testimony of Hanson and Applicant's Exhibit 15)

115. If the quarrying operation has an unacceptable interference on neighboring wells, as defined in the ANR Water Supply Rule, the applicant would then be responsible for repairing or replacing that water supply. (Applicant's Exhibits 2, 3, 15 and 16 and Testimony of Hanson)

116. Testing for water quantity will be done as a step-draw down test giving data from which to measure short term yield. (Applicant's Exhibits 2, 3, 15 and 16 and Testimony of Hanson)

117. The applicant has prepared a water quality testing program, which includes testing for the following: (1) chloride, (2) sodium, (3) iron, (4) manganese, (5) odor, (6) pH, (7) arsenic, (8) nitrate, (9) nitrite, (10) total coliform bacteria, (11) uranium, (12) *E. coli*, and (13) the Vermont List Volatile Organic Parameters (EPA Method 8021B). (Applicant's Exhibits 16 and 75 and Testimony of Hanson)

118. The first eleven constituents are identical to those required for new Public Transient Non-Community Water System Sources in Vermont under the ANR's Vermont Water Supply Rule. *E. coli* bacteria, is an indicator constituent that would provide information regarding the presence or absence of potential bacterial contamination. The final constituent, VT List of Volatile Organic Parameters, was added to address concerns from Parties about the presence of petroleum hydrocarbons which are present in fuels and oils and in some of the blasting agents to be used at the quarry. The laboratory detection limits for each of the volatile organic parameters are to levels below the Vermont drinking water standards for these petroleum hydrocarbons. This additional analysis would supplement the water quality monitoring data to provide all necessary information for a comprehensive water quality testing program of nearby water supplies. (Applicant's Exhibits 16 and 75 and Testimony of Hanson)

119. Results of the samples would be compared against the maximum contaminant level (MCL) for drinking water specified for each of these constituents to determine their concentrations with respect to these levels. The sample results for each sample collected would also be compared against each other to determine if there has been any water

quality effects potentially associated with the quarrying activities. (Applicant's Exhibits 16 and 75 and Testimony of Hanson)

120. The testing regime was selected because the compounds tested for are indicator parameters. Chloride and nitrate specifically, can be used as a tracer. If contamination were to occur, these tracer compounds will show up earlier in neighboring water supplies than other compounds because chloride and nitrate are more mobile in water and thus will transport more readily in water. (Testimony of Hanson)

121. Heavy metals which are present in some of the blasting agents are not being tested because they do not exhibit the same rapid migration rate in ground water as do chloride and nitrate. (Testimony of Hanson)

122. The testing program provides that in the event any of the tested compounds show up in wells, additional testing would be suggested or triggered. The early warning compounds that will be tested are established from a list found in the Vermont Water Supply Regulations that applies to public water supplies. (Testimony of Hanson)

123. In the event that an unacceptable level of quarry-related source interference is experienced at any of the water supply sources within the testing area, the applicant would be responsible to replace any water supply so impacted. (Applicant's Exhibit 16 and Testimony of McCain and Hanson)

124. The likelihood of metals from blasting agents getting into groundwater is quite low because the explosive materials are consumed during the blast event. (Testimony of Rath)

CONCLUSIONS

Before issuing a permit, the Commission must find that the project will not "cause an unreasonable burden on an existing water supply, if one is to be utilized." 10 V.S.A. § 6086(a)(3). The burden of proof under Criterion 3 is on the applicant.

As found above, the project does not propose to withdraw groundwater to meet its operational needs. 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: MBL Associates*, #4C0948-EB, (Altered) at 28 (May 2, 1995).

As in the Environmental Board's *Pike* case [#5R1415-EB, (June 7, 2005)], a number of different opinions were expressed regarding the project's potential impact on neighboring water supplies. The Commission notes that the applicant has designed the project so that it does not directly draw groundwater to meets its own water supply needs. The project will not draw from the aquifer supplying neighboring residences and farms unless the removal of rock itself impacts and redirects or otherwise changes the recharge of the aquifer.

The applicant's hydrogeologic analysis concluded the following: (1) the quarry site is a poorly fractured hilltop; (2) the topography of the land and the shallow depth to bedrock are less likely to

absorb water and more likely to shed water; (3) a 200 foot well drilled at the most likely place to encounter groundwater produced no measurable yield; and (4) the quarry floor is at least 170 feet above the top of all wells within 1800 feet and 105 feet or more above all wells within 2000 feet. Blasting can damage water supplies but only where permanent ground deformation occurs. Given the large vertical, and in many cases also large horizontal separation between neighboring wells it is unlikely that such deformation will occur. The Commission finds that the quarry operations will not result in an unreasonable burden on existing water supplies.

As the applicant's consultant acknowledged, it cannot be said with absolute certainty that the quarry will not adversely impact groundwater yield or quality within the potential zone of interference. The Commission therefore adopts a similar solution to the one fashioned in the *Barre Granite* case and followed in the *Pike* case. The applicant will be required to hire a consultant to do a baseline yield and water quality analysis from each of the eleven wells within a two thousand foot radius of the quarry center. The applicant shall conduct background analysis for the constituents identified in applicant's exhibit 75. The background testing shall be conducted prior to quarry development and the follow up testing shall occur during the initial, second and fifth summers in which the quarry operates each fifth summer thereafter. If the results of testing indicate that any of the existing water sources, currently able to meet the existing demand, are unable to continue to meet such demand, as shown by the results of the testing procedures, including the water quality testing, additional testing will be required, and will be used to determine and resolve impacts that are suspected to result from ongoing operation of the project.

In the event that an unacceptable level of source interference is experienced at any of the water supply locations as a result of ongoing project operation, which cannot be otherwise cured, the following measures will be implemented by the applicant 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 redrilling 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 affected 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.

The Commission 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.

Environmental Protection Rules, Chapter 21, Water Supply Rule at Appendices 114 (11.6.3) (April 25, 2005).

Consistent with *Pike* and *Barre Granite Quarries*, the Commission reaches a positive conclusion under criterion 3, but will require, as a condition of approval that the applicant monitor water quantity (volume) and quality as set forth in applicant's Exhibit 16 as modified by applicant's Exhibit 75.

SECTION 6086(a)(4) SOIL EROSION AND THE CAPACITY OF THE LAND TO HOLD WATER:

Erosion

125. The existing topography of the proposed extraction area consists of slopes ranging from 15 to 25%, with some steeper areas. The entire extraction area is presently wooded. The limit of excavation is shown on Applicant's Exhibit 4.

126. The majority of the 93 acre tract will be left undisturbed. All topsoil and organic material collected on site during the development of the haul road, staging area, and during the development of subsequent phases will be used in the construction of the berm or will be stored on-site with proper erosion prevention and sediment control (EPSC) measures, as necessary. Stockpiled topsoil will be used to reclaim disturbed areas as additional Phases are developed.

127. Runoff from the extraction area will be collected and treated in stormwater detention ponds prior to discharge. The potential for soil erosion is low. The project site is primarily covered by a Tunbridge-Lyman soils complex which is relatively shallow, and punctuated by rock outcropping and stone cover. Based on these soils and site conditions, the potential for erosion is low. (Applicant's Exhibits 2, 4 and 12)

128. Upon completion of the project, 17 acres will have been physically disturbed and an additional 2 acres will have been disturbed in connection will the widening of the haul road. (Applicant's Exhibits 2, 3 and 4 and Testimony of McCain)

129. The applicant has prepared a soil erosion control plan for the project. (Applicant's Exhibit 4 and 95)

130. The plan requires that erosion control procedures conform to the recommended practices described in the Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites. (Applicant's Exhibits 3 and 4)

131. Temporary and permanent erosion controls are shown on the detailed plans and include containment and treatment of the stormwater entering the detention pond, a stone-lined ditch along the access road, and a stabilized construction entrance at the curb cut. Stormwater runoff during excavation will be directed to the sediment ponds. This will ensure that siltation and erosion will not occur outside of the extraction area. (Applicant's Exhibits 3, 4 and 95 and Testimony of McCain)

132. As the quarry floor expands to encompass 8 acres, reclamation will commence in the extracted areas. The maximum area of quarry floor open at one time will be less than 10 acres. (Applicant's Exhibits 3, 4 and 95 and Testimony of McCain)

133. Reclamation of the floor will include placement of soil that was stripped and removed as the quarry expanded. Soil depth will be a minimum of 8" thick, and shall be seeded with

a mixture of Creeping Red Fescue @ 20 lbs/acre, Tall Fescue @ 20 lbs/acre, Smooth Bromgrass @ 20 lbs/acre, and Birds Foot Trefoil @ 8 lbs/acre.***** Seeded areas will be mulched at a rate of 2.5 tons/acre. There will be adequate topsoil and overburden for the reclamation, however additional soil will be trucked in if there is insufficient material available. The applicant's mass balance calculation estimated that there is adequate soil to reclaim the quarry floor with twenty-four inches of soil. (Applicant's Exhibits 3, 4 and 41)

134. The sidewalls of the quarry will be left as stepped benches. It is expected that trees, shrubs and grasses will establish themselves over time. To facilitate that growth, soil will be placed on accessible areas of the benches. The nature of the quarry walls will make it impractical to place soil on all areas of the benches. The applicant will conform to all applicable sections of "The Handbook for Soil Erosion and Sediment Control on Construction Sites" and publications by the Soil Conservation Service entitled "Vegetating Vermont's Sand and Gravel Pits". The quarry excavation will occur between April 15 and December 15. (Applicant's Exhibits 2, 4, 12 and 29)

135. Under the operating limits proposed by the applicant the quarry will only operate between April 15 and December 15, except for access to stockpiled materials with the prior approval of the Department of Fish & Wildlife. Vermont's construction season is not at its peak in the period between October 1 and December 15. During that period, the demand for aggregate products is substantially lower than it is during the peak season, which occurs in the summer. Activities conducted between October 1 and December 15 will be on a weather permitting bases. (Applicant's Exhibits 2 and 3)

136. At a minimum, erosion controls will be inspected weekly by an on-site coordinator. Additional inspections will be done after significant rains. The on-site coordinator will be accountable for the maintenance of the erosion controls.

Stormwater

137. The District Commission incorporates all findings stated above under criteria 1(B) and 2 with respect to runoff quantities and collection.

Therefore, the Commission concludes that the construction of the project will not cause unreasonable soil erosion or a reduction in the capacity of the land to hold water.

***** The Commission observes that Birds Foot Trefoil is a costly seed which may not succeed on this project site.

SECTION 6086(a)(5) TRANSPORTATION:

138. Access to the proposed quarry is directly from Route 100B approximately 2.5 miles north of Moretown Village. The access road, or haul road, will follow an existing woods road from Route 100B into the quarry site. The woods road will be substantially upgraded and its alignment modified at the intersection with Route 100B to support the proposed truck traffic. (Applicant's Exhibits 4 and 17).

139. The access road lies along a gradual horizontal curve and will require sight improvements in order to provide recommended intersection sight distances and in an effort to conform to VTrans Standard Detail B-71. In addition to sight distance improvements, "truck entering" warning signs in advance of the quarry entrance will be placed on Route 100B. (Applicant's Exhibit 17 and Testimony of Dickinson).

140. VTrans issued a Letter of Intent ("LOI") authorizing haul road improvements and rock removal along Route 100B in order to increase sight distances to the north. (Applicant's Exhibit 18)

141. The available sight distance to the north from the access road will be increased to 895 feet. Existing sight distance to the south exceeds 1,500 feet. (Applicant's Exhibits 4 and17 and Testimony of Dickinson)

142. The posted speed limit along Route 100B near the access road is 50 mph. The prevailing 85th percentile speed, however, is 58 mph. (Testimony of Dickinson)

143. A sight distance of 980' is required under AASHTO standards for combination hauling trucks. (Applicant's Exhibit 17 and Parties Exhibit 37)

144. The 980 foot sight distance is based upon the need to have 11.5 seconds within which to turn left crossing the southbound lane of the highway and then accelerate to safely get in front of vehicles traveling north on Route 100B. When making a right hand turn, a truck will not have to pass through the southbound lane. Left hand turns are upgradient and right hand turns are down gradient. (Testimony of Dickinson)

145. VTrans concluded that the applicant's proposed sight distances will be adequate based upon an understanding that the majority of hauling vehicles will be single-unit trucks and not combination trucks. (Parties' Exhibit 57).

146. The Secretary of VTrans reviewed the plans submitted by the applicant at the request of party Sanders and others. The Secretary stated that VTrans staff had reviewed the parties' concerns and that the Agency is confident that "it has struck a reasonable balance of factors that must be considered in relation to accesses, with safety as the priority." (Applicant's Exhibit 62)

147. Frequent fog conditions are prevalent in the Mad River Valley. (Testimony of Sanders)

148. Approximately 4 miles north of the access road, Route 100B intersects with US 2 and I-89 which are major east-west arterial highways. South of Moretown Village, Route

100B and 100 intersect and pass through the Mad River Valley. Routes 100B and 100 are classified as rural major collector and rural minor arterial roads, respectively. (Applicant's Exhibit 17)

149. The applicant's traffic consultant prepared a traffic impact assessment for the project. (Applicant's Exhibit 17.

150. Gravel and stone are currently hauled to the Mad River Valley and surrounding towns from Berlin, South Barre, Websterville, Williamstown, Williston, Graniteville, Hinesburg, Bolton, Northfield and Morrisville. Some Valley towns have their own limited supplies of such products and not all of these towns currently transport their crushed rock products over Route 100B. It is, however, reasonable to conclude that a percentage of truck trips generated by the project will replace some existing truck traffic. (Applicant's Exhibit 17 and Testimony of Dickinson).

151. There are seven entry points into the Mad River Valley which experience the following truck traffic volumes on a daily basis: (1) Route 100B south of Moretown Village – 222; (2) Route 100 in Duxbury - 172; (3) Route 17 – 69; (4) Route 100 through Granville – 107; (5) Lincoln Gap – 16; (6) Roxbury Mountain Road – 41; (7) Moretown Mountain Road – 29. These totals include all types of trucks. The most used entry point is Route 100B. (Applicant's Exhibit 62).

152. Approximately 62 of the 222 trucks passing through Moretown Village each day are heavy trucks, such as those that will haul from the quarry (Parties' Exhibit 56 and Testimony of Oman)

153. There has been a combined municipal use (Moretown, Middlesex, Waterbury, Warren, Waitsfield and Fayston) of approximately 34,000 cubic yards in 2003 and 39,000 cubic yards in 2004 of crushed rock or gravel materials similar to the products to be produced by the project. (Applicant's Exhibit 2)).

154. A VTrans traffic count taken over a seven day period during August 2004 produced an annual average daily traffic count ("AADT") of 3,400 vehicles per day at VTrans traffic count point W138 (south of Moretown Village). (Applicant's Exhibits 17 and 79)

155. The applicant's consultant calculated existing 12-hour truck traffic AADT volumes through Moretown Village of 181 single unit trucks plus 32 tractor trailers, for a total of 213 trucks. (Applicant's Exhibit 47)

156. The project will generate a maximum of 54 loaded dump trucks per day (108 vehicle trip ends (v.t.e.) and up to 10 other vehicles (an additional 20 v.t.e.). (Applicant's Exhibit 17) The applicant has the ability to enforce the 54 truck per day limit by excluding excess third parties from accessing the quarry. (Testimony of McCain)

157. The applicant estimated an average daily traffic volume of 36 loaded trucks. (Applicant's Exhibit 17).

158. The types of vehicles to be loaded at the project will have capacities ranging from 7 to 20 cubic yards. For purposes of assessing traffic impact, the applicant estimated that the average load would be 14 cubic yards. (Applicant's Exhibit 17).

159. The applicant anticipates that no more than ten percent of the trucks accessing the project would be combination trucks. The remaining ninety percent are expected to be single-unit trucks. (Applicant's Exhibits 17 and 47). General truck types or classifications are provided on the FHWA figure attached to applicant's Exhibit 79.

160. On an average day, a truck would be loaded approximately every 17 minutes and on a maximum day a truck would be loaded every 11 minutes. (Applicant's Exhibit 17) The peak hours of trip generation will generally occur during the morning and mid-day periods. (Applicant's Exhibit 17).

161. Due to equipment limitations, no more than 12 dump trucks could potentially be loaded per hour. (Testimony of Dickinson)

162. On average the project will produce 8 truck trip ends per hour and the maximum is likely to be 16 v.t.e per hour. (Applicant's Exhibit 17).

163. The applicant estimated the quarry could increase average daily heavy truck traffic through Moretown Village by 44 trucks (at 60% "pass through") or 72 trucks (at 100% "pass through") (Applicant's Exhibit 17)

164. The applicant's estimate of truck trips assumed that trucks from the quarry will be filled to capacity in order to meet quarry output. (Testimony of Oman)

165. The weight limit on Route 100B is 55,000 pounds for a tandem dump truck and 60,000 pounds for a tri-axle. These weights can be increased to 60,000 pounds and 69,000 pounds respectively by obtaining an overweight permit. An empty tandem truck weighs on average up to 22,000 pounds and an empty tri-axle weighs an average up to 25,000 pounds. (Testimony of Dickinson)

166. Pursuant to 23 V.S.A. §1400a, *et seq*., the Town of Moretown regulates local road conditions and must approve use of its local roads for vehicles carrying a gross weight of more than 24,000 pounds.

167. A cubic yard of stone weighs 1.5 tons. A tandem truck can carry 13 cubic yards of stone and a triaxle can carry 15 yards. (Testimony of Dickinson)

168. The parties' traffic consultant stated his opinion that the average load is likely to be lower based on higher estimate of truck tare weight. As a result, this consultant's traffic analyses were premised on quarry traffic generation rates of 49 average day loaded trips and 148 maximum day loaded trips. (Parties' Exhibit 37 and Testimony of Oman)

169. Complying with the aforementioned weight limits stated in finding 165 will result in truck trips greater than those projected by the applicant in order to meet the proposed

quarry extraction rates. The peak hour/peak day hauling rate could be 73 trips per hour at the quarry, allowing for trucks passing on the haul road. (Testimony of Oman)

170. Vermont Route 100B is a route for school buses that transport students to the Moretown elementary school. Approximately 50 students use 20 bus stops twice daily. (Parties' Exhibit 43)

171. The school bus routes are an attachment to Parties' Exhibit 43. Bus runs take place during three time periods: 7-8 a.m.; 11-12:15 p.m.; 3-4:15 pm.

172. Vermont Route 100B runs through the length of Moretown Village. In addition to being lined with residences, the highway is also adjacent to the town elementary school, the town clerk's office and other similar land uses. Recreational facilities are located behind the school. (Testimony of Hogenboom)

173. Moretown Village has limited sidewalks, and what sidewalks do exist are in very poor condition. Village residents and their children walk from their homes to the above-mentioned facilities and often have to walk in the road. (Testimony of Hogenboom)

174. In the early 1970's a federal Evironmental Impact Statement (EIS) was performed in conjunction with planning for a bypass of Moretown Village by Route 100B (Parties' Exhibit 104)

175. The EIS stated the conclusions of a federal highway agency that the condition of Route 100B in Moretown Village represented "very dangerous" conditions (Parties' Exhibit 104)

176. These "very dangerous" conditions stemmed from "congestion" in the village, the steep and blind curve at 100B and Moretown Mountain Road, the proximity of homes and the school to the roadway and physical characteristics. (Parties' Exhibit 104)

177. The project could increase heavy truck traffic through Moretown Village by 44 trucks (60% average day pass-through) to as many as 72 trucks (100% peak-day pass-through). (Parties' Exhibits 56 and 59)

178. The applicant's traffic analysis did not assess the impacts of additional heavy truck traffic in Moretown Village (Testimony of Oman)

179. During the District Commission site visit to the Village of Moretown on July 28, 2006 between 8 and 9 a.m. 33 trucks, all larger than pickup trucks, passed through the Village.

180. The posted speed limit in Moretown Village is 30 mph. Many vehicles do not observe the speed limit. (Testimony of Hogenboom)

181. Level of Service (LOS) is a system designed to measure how well a road system functions, and how congested it is. The system ranges from A to F, where A is the best and F is the worst. (Applicant's Exhibit 17).

182. The applicant conducted LOS analyses of the intersection of the haul road and Route 100B, the intersection of Route 100B and Route 2 and the intersection of Route 100 and 100B. All three intersections were analyzed as two-way stop controlled using the analytical procedures outlined in the Highway Capacity Manual. (Applicant's Exhibit 17).

183. For purposes of analyzing LOS, the applicant assumed 100% of the maximum project traffic would travel through the intersection being analyzed. For purposes of analyzing safety issues, he assumed a 60%/40% south/north directional split. (Testimony of Dickinson).

184. The LOS at the three intersections mentioned above will remain at either LOS A or LOS B through 2010 based on the 2004 VTrans AADT traffic count numbers adjusted for expected normal background growth and adjusted to add project traffic. (Applicant's Exhibit 17).

185. Although for purposes of analyzing LOS the applicant's consultant assumed 100% of the maximum project traffic would travel through the intersection being analyzed, it can reasonably be expected that truck traffic will, more often than not, split rather than run all in one direction. (Applicant's Exhibit 17 and Testimony of Dickinson).

186. Design hour traffic volumes on Route 100B in Moretown village could increase by 220 vehicles per hour (including 45 additional heavy trucks per hour) without reducing its LOS below C. (Applicant's Exhibit 17).

187. The intersection of Moretown Mountain Road and Route 100B in Moretown Village is not an ideal intersection. Moretown Mountain Road is not anticipated to be a major trucking corridor for trucks leaving the quarry due its poor quality and because the demand for stone products along Moretown Mountain Road is not expected to be significant. Furthermore, there are other roads which would allow truck to access Moretown Mountain Road and avoid the intersection of Route 100B. (Testimony of Dickinson)

188. No high accident locations have been identified by VTrans on US 2, Route 100 or Route 100B in Moretown or Middlesex based on the most recent listings using 1998-2002 accident data. (Testimony of Dickinson)

189. At the request of the Commission, the applicant's consultant reviewed historical accident data to determine if any relevant intersection were recently classified as high accident locations. Reports going back to the 1983-1987 report were reviewed. (Applicant's Exhibit 60)

190. There are no sections of Route 100B in Moretown identified in any of the five reports reviewed. The Route 100/Route 100B intersection is identified as a High Accident Location in the 1990-1994 report. This appears to have been due to accidents on the Route 100 side of the intersection and not in the Route 100B approach to the intersection. (Applicant's Exhibit 60 and Testimony of Dickinson)

191. The Moretown Mountain Road – Route 100B intersection is not a high accident location. (Parties Exhibit 37). Four accidents have occurred at that intersection in the period of 1999 to 2003. None of the applicant's trucks would be making turns onto Moretown Mountain Road from Route 100B, and vice versa. Trucks currently driving up Moretown Mountain Road pull into the Ward Clapboard Mill for straight access to the Mountain Road. (Applicant's Exhibit 17 and Testimony of Rivers).

192 Vermont Route 100B is a well-used bicycle route. Heavy vehicles, particularly at speed, can be a hazard and impediment to bicyclists (Parties' Exhibit 37 and Testimony of Oman)

193 No vehicle-bicycle or vehicle-pedestrian accidents have taken place between the intersections of Routes 100/100B and US 2/100B during the five year period of 1999-2003. (Applicant's Exhibit 17)

CONCLUSIONS

Before issuing a permit, the Commission must find that the project "[w]ill not cause unreasonable congestion or unsafe conditions with respect to use of the highways…." 10 V.S.A. § 6086(a)(5). A permit may not be denied solely on the basis of Criterion 5 and the Commission must attach reasonable conditions and requirements to the permit to alleviate any identified unreasonable burdens. 10 V.S.A. 6087(b). The evidentiary burden of proof to show an unreasonable effect under criterion 5 is upon an opposing party. 10 V.S.A. 6088(b).

Access onto Vermont Route 100B

Safe travel is in the public's interest. *In re: Pilgrim Partnership*, 153 Vt. 594, 596 (1990). Adequate sight distances are an element of the Commission's evaluation of safety considerations. *Re: Susan Dollemaier and Martha Dollenmaier Spoor*, #3W0125-5-EB, (February 7, 2005); *Re: Old Vermonter Wood Product*, #5W1305-EB, at 16-18 (August 19, 1999)

The project will have access onto Route 100B which is a state-maintained major rural collector highway experiencing 3,400 vehicles per day. The project access has been approved by VTrans. According to the applicant's consultant, sight distances in both directions meet or exceed the VTrans and AASHTO requirements. The parties' consultant expressed the opinion that sight distance to the north must be improved to 980 feet rather than the proposed 895 feet.

The Environmental Board has held consistently that while District Commission use and reference to VTrans standards B-71 can be helpful in the evaluation of a project's conformity with criterion 5, the standards in and of themselves are not dispositive in Act 250 cases *Re: Richard and Barbara Woodard* 5W1262-EB (December 18, 1997). In addition to the VTrans standards, other factors, such as historical road function and safety records are to be taken into account. *Old Vermonter Wood Products* 5W1305-EB (August 19, 1999); *Rome Family Corporation* 1R0410-3-EB (October 11, 1990).

In the matter at hand, there is no evidence of existing safety problems on this section of Route 100B. The state highway has a significant daily volume of traffic but the record does not reflect a volume so high as to not afford reasonable breaks in the stream of vehicles. The proposed northbound sight distance of 895 feet will be 85 feet less than the preferred 980 foot sight distance. At the hearings, the applicant's expert stated that signs could be placed along Route 100B on the northerly approach to the quarry access. The signs would warn of the quarry access and entering trucks. The facts of this case support a conclusion that with the use of these signs on the days of quarry operation, along with the above-referenced improvements to accomplish the 895 foot sight distance, unreasonable unsafe circumstances will not result and the permit will be so conditioned. Finally, by permit condition the applicant will be required to notify all independent haulers that queuing along Route 100B prior to the morning opening of the quarry is prohibited.

Vermont Route 100B and Moretown Village

The applicant proposes a project that will generate truck traffic along Vermont Route 100B. The traffic associated with the quarry will not cause the intersection Level of Service at the junctions of Route 100B and the access road, or Route 100 and 100B to deteriorate to a lower Level of Service (LOS) than what currently exists today within the next five years. As found above, LOS is a measure of congestion. The parties' expert concurs with the applicant's expert that the Project will not result in a congestion problem.

There are no high accident locations at the intersection of the access road and Route 100B or at the intersection of Route 100B and Route 100. There are no high accident locations within the Village of Moretown. The intersection of Moretown Mountain Road and Route 100B is an intersection of less than ideal geometry. The project will not change that, either for the better or for the worse. While the Commission can impose reasonable permit conditions, the Commission is not "empowered to make the [Applicant] single-handedly resolve traffic flow and design problems that are not of its making." *Re: Springfield Hospital*, #2S0776-2-EB, Memorandum of Decision at 10 (August 14, 1997).

It is not expected that more trucks will make left hand turns onto Moretown Mountain Road as a result of the quarry or that they will be making more turns off of Moretown Mountain Road as a result of the quarry. There are other means of accessing potential delivery points on Moretown Mountain Road and locations accessed therefrom. Furthermore, to the extent that there is truck traffic that will travel on Moretown Mountain Road, that traffic will not be created by the project. That is, the sale of crushed stone is not driven by supply. If crushed stone is needed at some location along the Mountain Road, or for that matter along the Moretown Common Road, then it will be delivered there. If it is not needed, the project will not create the demand.

The applicant has proposed a maximum of 54 loaded trucks per day and up to an additional 10 round trips for employees and service vehicles. The applicant can ensure that this maximum is met by limiting access to the project once the maximum is met. The parties' expert has produced studies based on higher maximum traffic counts. As the applicant has only requested that the Commission consider up to 54 round trips per day, that is all that the Commission has considered, that is all that is approved, and the Commission will condition the permit accordingly.

One final aspect of the project requires prudent constraints – the potential interaction of loaded trucks with school buses along Route 100B. As found above in finding #171, there are existing school bus routes along the hauling route. The District Commission believes it is necessary and reasonable to condition the land use permit to require the applicant to provide a plan of action prior to quarry operation that will prevent trucks from hauling along Route 100B during periods when school bus routes will be in use.

The Commission concludes that the proposed quarry will not cause unreasonable traffic congestion or unsafe conditions on the adjacent highway network. The Commission retains continuing jurisdiction and reserves the right to require additional evidence on traffic volumes, convene hearings and attach permit conditions as deemed necessary in order to ensure that unreasonable burdens continue to be alleviated.

In sum, the Commission concludes that the increased truck traffic, the sight distances, and the reconstruction of the access road would not cause unreasonable congestion or unsafe conditions with respect to the use of the highways.

SECTION 6086(a) 6 (EDUCATIONAL SERVICES):

194. The project will not result in any increased school enrollment in the Moretown Elementary School or in the regional high school. (Applicant's Exhibit 3)

195. The superintendent of schools identified no unreasonable impacts. (Applicant's exhibit 19)

196. The District Commission incorporates by reference findings stated under criterion 9(A).

CONCLUSIONS

Under 10 V.S.A. 6088(b), the burden of proof under criterion 6 is upon a party in opposition. Even if unreasonable impacts are identified, a permit may not be denied. Instead, permit conditions are imposed to alleviate unreasonable burdens. 10 V.S.A. 6087(b).

Criterion 6 is one of the so-called fiscal criteria of Act 250. The common element of these criteria – criteria 6, 7, 9(A), 9(H) and 9(K) is the protection of government finances from burdens imposed by new development *St. Albans Group and Walmart Stores, Inc.* 6F0471-EB (Altered) June 27, 1995, aff'd 167 Vt 75 (1997). Cognizant of the relationship between these criteria, the Commission references conclusions below under criterion 9(A) yet mindful that independent conclusions are required for each criterion.

The Commission concludes that the applicant has produced sufficient evidence on which to reach a positive conclusion that the project will not cause an unreasonable burden on Moretown's ability to provide educational services. The project is unlikely to add any students to the Moretown Elementary School. In the event that the project were to add a limited number of students, the declining trend in the school age population is evidence that there is available capacity.

To the extent that students might be added to the Moretown Elementary School, the small increase would not create a burden, much less an unreasonable one. In Vermont, education is funded by a statewide tax on nonresidential and homestead property. 32 V.S.A. § 5402. All monies collected under this tax are paid into the education fund. 16 V.S.A. § 4025(a)(1). The education fund in turn is used to make payments for education spending. 16 V.S.A. § 4011. Thus, the former Environmental Board has ruled that:

> Under Vermont's school financing system, non-capital cost of additional students would be financed by the State Education Fund. However, if the Project increased the number of students which resulted in the need for extra facilities, such costs would be the responsibility of local governments. Thus, in determining whether the development will cause an unreasonable burden on the municipalities [sic] ability to provide services, the first step is to determine whether the new development will cause an increase in the number of students and whether the local schools can absorb an increase in the number of students and whether the local schools can absorb any increase without capital expenditures.

Re: Okemo Mountain, Inc., #2S0351-30(2nd Rev.)-EB, #2S0351-31-EB, and 2S0351-25R-EB, at 88 (February 22, 2002). The Town has not demonstrated that the project will result in the need for new facilities of any sort, has not demonstrated what the cost of the facilities might be, and has not indicated whether there are factors that might offset any potential cost. *See Re: Clarence and Norma Hurteau*, #6F0369-EB, at 9 (April 24, 1989).

The Commission finds that the applicant has provided sufficient evidence to permit the Commission to reach positive findings under Criterion 6. The Town has not met its burden of proof.

SECTION 6086(a)(7) MUNICIPAL SERVICES

197. The project will require municipal services in the form of fire protection services. (Applicant's Exhibit 3)

198. The Moretown Fire Department indicated its ability to serve the project. (Applicant's Exhibit 20)

199. The Mad River Valley Ambulance Service (a private non-profit organization) and the Vermont State Police also indicated abilities to serve the project. (Applicant's Exhibits 21 and 22)

200. The District Commission incorporates by reference findings stated under criterion 9(A).

CONCLUSIONS

Under 10 V.S.A. 6088(b), the burden of proof under Criterion 6 is upon a party in opposition. Even if unreasonable impacts are identified, a permit may not be denied. Instead, permit conditions are imposed to alleviate unreasonable burdens. 10 V.S.A. 6087(b).

Criterion 7 is one of the so-called fiscal criteria of Act 250. The common element of these criteria – criteria 6, 7, 9(A), 9(H) and 9(K) is the protection of government finances from burdens imposed by new development *St. Albans Group and Walmart Stores, Inc.* 6F0471-EB (Altered) June 27, 1995, aff'd 167 Vt 75 (1997). Cognizant of the relationship between these criteria, the Commission references conclusions below under criterion 9(A) yet mindful that independent conclusions are required for each criterion.

The applicant has produced evidence indicating that there are minimal, if any additional service costs to the town as a result of the project.

For reasons discussed at more length under criterion 9(A), the District Commission concludes that the parties have not met their burden of persuading the Commission that the project will impose a burden on the Town or that the burden will be unreasonable *Okemo Mountain, Inc. supra*.

SECTION 6086(a)(8) (AESTHETICS, SCENIC BEAUTY, HISTORIC SITES AND NATURAL AREAS):

Visual Impacts

201. The project is proposed for a 93 acre tract of land on the northwest side of Vermont Route 100B approximately 2 ½ miles north of Moretown Village. The closest point of the working quarry will be 760 feet from Route 100B. (Applicant's Exhibit 4 and Testimony of McCain)

202. The project tract is a forested hillside with ledge outcrops on the western flank of the Mad River valley and rises from an approximate elevation of 568' at Vermont Route 100B (Applicant's Exhibit 24, Sheet E) to an approximate height of 1050'. (Applicant's Exhibit 16, topographic map in appendix)

203. The eastern flank of the river valley rises from an approximate flood plain valley floor elevation of 525' to an approximate elevation of 1,000' at the Moretown Common Road. (Parties' Exhibit 58, Attachment 7)

204. Trees around the proposed quarry site include red and sugar maple, American beech, yellow birch, white ash, eastern hemlock, white pine and red spruce. Heights of mature trees range from 45 feet to an average of 60 feet to 80 feet for dominant and co-dominant species. Tree health is generally good on the site except for signs of white

pine blister rust and beech bark disease. The incidence of diseased trees is fairly low. (Applicant's Exhibit 89)

205. The quarry will be developed in 6 phases over a 33 year period. The site footprint will commence in the phase 1 area but will not necessarily continue in numerical sequence as shown on the site plans. (Applicant's Exhibits 2 and 4 and Testimony of McCain).

206. The quarry footprint will occupy approximately 17 acres of the 93 acre tract with additional clearing and disturbance of approximately 2 acres as part of the construction of the 1,400 foot haul road and in the clearing of sight distances lines along Route 100B. Infrastructure to provide electric service to the site will be installed along the access road. (Applicant's Exhibits 2, 3 and 4)

207. To provide for 895 feet of sight distance, approximately 400 linear feet of ledge will need to be removed along Route 100B. The vertical exposed face is expected to range from zero to 22 feet in height with an average height of 15 feet. This exposed rock will be similar to what is seen along other state roads in the area and along I-89. (Applicant's Exhibits 4 and 24 and Testimony of Boyle)

208. A minimum 200 foot wide undisturbed buffer vegetated with existing trees will be maintained around the quarry operation area. (Applicant's exhibit 4).

209. The final quarry floor will be at elevation 820'. The top of the quarry face at phase 6 will be at approximate elevation 1,030'. The quarry will be excavated to an approximate depth of 210 feet below existing ground surface at the western limits. (Applicant's Exhibits 2, 4 and 24, Sheet D1 and Testimony of McCain).

210. The majority of the tract will be left undisturbed. Less than 10 acres of the quarry foot print will be disturbed at any time. When the operations result in the creation of eight acres of quarry floor, the applicant will commence reclaiming the floor with the overburden that will have been stockpiled as extraction proceeds. Upon completion of quarrying activities, there will be a 14-acre floor which will be reclaimed with soils and revegetated. There will be 3 acres of quarry benches that will be revegetated to the extent that it can be safely done. (Applicant's Exhibits 2, 3 and 92)

211. As openings are created in woodland, sunlight falls on the open floor and immediate regeneration occurs. Where there are bedrock, slopes, cracks and shelves, vegetation creeps down into any cracked surface. (Testimony of Laferriere)

212. The applicant's forester has seen no evidence of blow down occurring in areas adjacent to sites cleared of trees and with increased exposure to the elements. In his opinion it is very uncommon to lose vegetative buffer as a result of weather conditions. (Testimony of Laferriere)

213. The soil depth around the immediate perimeter of the quarry varies as does the quality of the soils. Based on observations of topography and soil type, regeneration of disturbed

areas would commence immediately following any disturbance. (Testimony of Laferriere)

214. The sign for the project at the Route 100B entrance will be 4'x4' with black letters on a white background, supported on a stone foundation by 6"x6" stained wooden posts. There will be no lighting of the sign. (Applicant's Exhibit 30)

215. There will be no lighting associated within the quarry site. (Applicant's Exhibit 3)

216. No utilities will be required for this project other than electrical and telephone. Utilities will be located underground. (Applicant's Exhibit 3)

217. There are no permanent buildings proposed for this project. The project includes one small structure to be used as an office. The building will be a mobile construction office and will be located where the access road enters the quarry area. The building will be approximately 18' x 24' and will have limited visibility from off-site. (Applicant's Exhibits 2, 4 and 24)

218. Properties adjoining the tract are either undeveloped forest parcels or developed with residences at a very low density. There are equestrian facilities located in the vicinity of the project. (Parties' Exhibit 58 – Attachment 2 and Testimony of Sanders and Sainsbury)

219. There are 93 properties within a 1 ½ mile radius of the project site. [Parties' Exhibits 32 (attachments M1, M3 and M5) and 58 (Attachment 5)]

220. Parties Sanders are abutters to the southwest of and below the project tract. They frequently use portions of their land that will be within 800 feet of quarry phases 4 and 5. The quarry operation will not be visible from their residence, which will be 1,250' from the quarry, or land. [Parties' Exhibits 32 (maps) and 58 (Attachment 4) and Applicant's Exhibit 46]

221. Party Holden is an abutter to the northeast of and at comparable elevations with the project tract. The family makes frequent recreational use of their land. The Holden residence will be the closest residence to the quarry limits at an approximate distance of 720 feet. Quarry limits will be approximately 200 feet from their property line. The quarry operation will not be visible from their residence or land. [Applicant's Exhibits 2, 4 and 24; Parties' Exhibits 32 (maps) and 58 (Attachment 4)]

222. Parties Farley and Byrne reside across and below Route 100B to the south of the project tract. Quarry limits will be approximately 1,110' feet from their residence. While the improvements along Route 100B will be visible from their land, the quarry will not be. [Applicant's Exhibits 4, 24 and 46; Parties' Exhibit 32 (maps) and 58 (Attachment 4)]

223. Parties McMullen reside across and below Route 100B to the southeast of the project tract. Quarry limits will be approximately 1,230' feet from their residence. No aspect of the project will be visible from their land. [Applicant's Exhibits 4, 24 and 46; Parties' Exhibits 32 (maps) and 58 (Attachment 4)]

224. Parties Hendrickson also reside across and below Route 100B to the east of the project tract. Quarry limits will be approximately 1,000 feet from their property line. No aspect of the project will be visible from their land. [Applicant's Exhibits 4, 24 and 46; Parties' Exhibits 9, 32 (maps) and 58 (Attachment 4)]

225. Parties Porter reside adjacent and to the east of the Hendricksons. No aspect of the project will be visible from their residence which will be 1,070' from the quarry. [Applicant's Exhibits 4, 24 and 46; Parties' Exhibits 32 (maps) and 58 (Attachment 4)]

226. Party Dansker is an abutter to north and northwest of the project tract and at a higher elevation. Quarry limits will be approximately 250 feet from his property line. He uses his land for silvacultural and recreational purposes. He does not reside on his land. [Applicant's Exhibits 4 and 24; Parties' Exhibits 32 (maps) and 58 (Attachment 4)]

227. Parties Sainsbury own a large tract across both Route 100B and the Mad River from the project tract. Their residence is on the valley floor approximately one mile from quarry limits. No aspect of the project will be visible from their residence. Some minimal portions of the quarry faces may be visible from undeveloped hillside portions of their extensive land holding. [Applicant's Exhibits 4 and 24; Parties' Exhibits 32 (maps) and 58 (Attachment 4)]

228. Party Allen resides on Route 100B approximately 1.3 miles south of the project tract. Minimal portions of the faces during the later phases of the quarry may be visible from his land. [Applicant's Exhibit 24 and Parties' Exhibit 32 (maps) and 58 (Attachment 4)]

229. Party Sharpwolf resides off the Honan Road on the eastern flank of the valley hillside at an elevation above the project tract. Quarry limits will be approximately 1,500 feet from her property line. The quarry operation will be visible from her property. [Parties' Exhibit 32 (maps) and 58 (Attachment 4)]

230. Parties Jonas and Gallagher reside on the eastern flank of the valley hillside adjacent to party Sharpwolf. The quarry operation will not be visible from their residence. [Applicant's Exhibits 4 and 24 and Parties' Exhibit 32 (maps) and 58 (Attachment 4)]

231. Parties Hall also reside off Honan Road adjacent to party Sharpwolfe. The quarry operation will not be visible from their residence. [Applicant's Exhibits 4 and 24 and Parties' Exhibit 32 (maps) and 58 (Attachment 4)]

232. Parties Marten and Ruth Van Heuven reside on the eastern flank of the valley hillside off Farnham Road. The quarry operation will not be visible from their residence. (Parties' Exhibit 12)

233. Parties LaRocca reside off the Moretown Common Road on the eastern flank of the valley hillside at approximate elevation of 1140'. Their residence is about 1.2 miles

distant from the quarry tract. Successive phases of the quarry will be visible from their residence. [Parties' Exhibits 58 (attachment 7) 65 and 67 and Testimony of LaRocca].

234. Parties Wichard and Constance Van Heuven reside on the Moretown Common Road at approximate elevation 965 and at an approximate distance of 1.2 miles from the closest quarry limits. Successive phases of the quarry will be visible from their residence. [Parties Exhibit 58, attachment 7)]

235. Many of the parties opposed to the project testified and filed statements articulating that they chose to live in the area due to its scenic and natural beauty and a peaceful residential setting. (Parties' Exhibit 10)

236. The Moretown Common Road runs along a plateau on the ascending hillside on the eastern flank of the Mad River Valley, opposite the project tract. (Parties' Exhibit 58)

237. The Moretown Common Road is utilized by bicyclists and others who enjoy the panoramic views. The Fall 2004 edition of Vermont Life included references to this road in a fall foliage tour route. The Town of Moretown has designated the road as a "scenic road" in the town plan. Camel's Hump is the predominant land feature with ascending forested hills and ridges in the foreground. (Parties' Exhibits 58 and 65 and Testimony of LaRocca).

238. The quarry operation will be visible from segments of the Moretown Common Road. (Parties' Exhibit 58; See Applicant's Exhibit 24). At its completion and following reclamation, the quarry site at a distance will eventually resemble ledge walls common throughout the region. (Testimony of Boyle)

239. Vermont Route 100B runs along the floor of the Mad River Valley. The highway is lined by forested slopes, meadows and very scattered rural residences. Few man-made intrusions appear or interrupt the valley setting. The highway corridor is recognized in the town plan as an area of "critical importance to the town's rural character and scenic landscape". A Route 100B corridor/scenic byway management program has been outlined and funded. (Parties' Exhibit 109)

240. The highway corridor has popular use by bicyclists, horse riders, runners and related recreationalists.

241. Both the applicant and parties' aesthetics consultants concluded that there will be views from the highway of quarry walls of some duration in time during the later phases of quarry development. These views will be from Route 100B northbound. The quarry face will not be visible from Route 100B southbound. (Applicant's Exhibit 24 and Parties' Exhibit 58).

242. As detailed in applicant Exhibit 24, the potential for views of the quarry face occurs at the farthest distances on the Route 100B northbound approach. The maximum distance

of visibility will be along a 3,000 foot stretch of highway for approximately 40 seconds of travel time. The horizontal view may be as much as 200 feet. (Testimony of Boyle)

243. The quarry operation areas will not be visible during any phase from the Route 100B corridor. (Applicant's Exhibit 24 and Testimony of Boyle)

244. The Mad River and its shorelines are an important regional recreational resource. (Parties' Exhibit 58)

245. Along the river north of the project tract is the Ward public recreation area which is used for fishing and swimming access. The quarry operation and faces will not be visible from this site. (Applicant's Exhibit 24).

246. South of the project tract on Route 100B is another smaller popular fishing hole. While later phases of the quarry faces will be visible from this site, quarry operations will not be. [Applicant's Exhibit 24]

247. The Mad River draws a wide range of other users including boaters and tubers. Use of the river is heavy during summer months, the peak operation period for the quarry. The quarry operation and faces will not be visible from the river given its elevations. (Testimony of Boyle and Raphael)

248. The District Commission conducted two site visits in order to understand the relationship of the project site to its setting.

249. The first site visit took place on December 12, 2005. The Commission, with representatives of the applicant and parties, toured the project site and vantage points along Route 100B and the Moretown Common Road. The views from and of the tract were unobscured by foliage. The District Coordinator had proposed that a bonfire be burned on the site as a visual reference point. The bonfire was not pursued following objections from the parties.

250. The second site visit took place on June 27, 2006 and its itinerary was planned with input from the applicant and parties. Full foliage was in bloom. Despite best efforts by the applicant to fly balloons in order to delineate the "four corners" of the tract as reference points, high winds thwarted this effort. The District Commission's observations from its site visit were set out in a memorandum from the District Coordinator dated June 30, 2006 and are incorporated herein by reference.

251. The applicant has offered the following mitigation measures in designing the quarry: The quarry operations will be at least 750 feet from Route 100B; quarry operations will be 200 feet or more from any neighboring property lines; the applicant will construct a berm to limit noise emissions to the extent feasible to the Common Road. (Testimony of

McCain). Quarry operations will be limited to the months, days and hours cited above in the General Findings.

252. The District Commission incorporates by reference related findings under criterion 9(E)(i) with respect to surrounding land uses and quarry operations, 9(E)(ii) with respect to site reclamation and 10 with respect to provisions of the plan for the town of Moretown

253. There are no known rare, threatened or endangered species or significant natural communities on the tract. There are no historic sites on the tract. (Applicant's Exhibits 3, 23 and 33)

Noise Impacts

Quarry Site and Surrounding Area

254. The District Commission incorporates by reference findings stated above in the General Findings as to days and hours of quarry operation and equipment types. The Commission also incorporates findings under criterion 9(E)(i) with respect to blasting.

255. The operation of the quarry will generate noise. Sources of this noise will include a hydraulic rock drill, loader, crusher, truck traffic and periodic blast charges. (Applicant's Exhibit 3).

254. Traffic along Vermont Route 100B causes a level of existing background noise. Other existing background noise sources include traffic on nearby town roads, the operation of lawn mowers and farm equipment, wind blowing and wildlife (Applicant's Exhibit 26 and Testimony of Kalipinski).

255. The quarry loading area has been designed such that trucks will enter the quarry and travel a circular route through the quarry in order to minimize the activation of back-up alarms. (Testimony of Rivers and McCain) Crushing and screening operations ("the process zone") will be relocated as the quarry development progresses in order to be in proximity to the current working face. (Applicant's Exhibits 22 and 26)

256. A berm will be constructed and is intended to shield surrounding properties from noise generated in the process zone by trucks, the loader and the crusher. The berm will be constructed from overburden, stumps and rock obtained from the clearing of phase 1. The berm dimensions will be 200' long, 40' wide and 15' high. (Applicant's Exhibits 2 and 4, Sheet 4 and Testimony of Kalipinski)

257. A buffer width of 200 feet will be maintained around the quarry in an effort to attenuate noise by tree cover and distance to property lines. (Applicant's Exhibits 4 and 26 and Testimony of Kalipinski)

258. Exhaust mufflers will be installed on all diesel engines to control noise. (Applicant's Exhibit 26)

259. All quarry equipment will be equipped with radar detection back-up alarms. (Applicant's Exhibit 26)

260. Rock drilling noise will be minimized by employing hydraulic drilling equipment and a temporary noise barrier for certain areas when the drill is on the surface. Only one drill will ever operate at one time. (Applicant's Exhibit 26 and Testimony of McCain)

261. It takes an estimated 20 to 25 minutes to drill a blast hole at a rate of 900 feet/day. Approximately 62 drill holes generate 7,950 cy of rock. Therefore, it will take approximately 31 hours (4 work days) to drill 62 holes. (Testimony of Rath)

262. Sound is measured in decibels (dB). Sound is measured on a logarithmic scale. Logarithmic scales are not additive. That is, two 55 dB sounds occurring at the same time are not the equivalent to a 110 dB source. (Applicant's Exhibit 26)

263. If the difference between the sound levels produced by two sources is greater than 5dB, the lower power source does not contribute to the sound level. (Applicant's Exhibit 26)

264. Sound levels detectable by human hearing are defined in a decibel (dB) scale with 0 dB being the threshold of human hearing and 135 dB being a level at which pain and permanent damage occurs to the ear. Noise that is audible to the human ear is typically measured on an "A" weighted scale and is signified by dBA. Sound levels of representative human activities are as follows: tree leaves rustling in the wind measure at 10 dB, business office activities measure at 55 dB and urban traffic measures at 85 dB. (Applicant's Exhibit 26)

265. The equivalent sound level ("Leq") is a logarithmic average of noise levels due to all sources of noise in a given area over a specified period of time as opposed to an instantaneous sound level at a single point in time. (Applicant's Exhibit 26)

266. The decibel scale is logarithmic and weighs louder noises. To account for changes in noise levels over time, a weighted average sound level called "equivalent" sound level (Leq) is used. Leq averages total sound pressure and results in weighting loud and infrequent noises more heavily than softer and frequent noises. (Applicant's Exhibit 26)

267. Sound travels along a linear path and is dissipated where there are obstructions blocking the travel of the sound wave. Berms, hills and trees between a sound source and a sound receiver lead to a reduction in sound levels because they obstruct the travel of sound. (Applicant's Exhibit 26)

268. Sound levels can decline over distance due to the following: "spreading"; atmospheric absorption; intervening objects blocking line of sight (e.g. terrain, vegetation, walls); and meteorological effects. (Testimony of Kalipinski). The applicant's noise consultant has recommended the use of a "Kit-of-Parts" noise barrier. (Applicant's Exhibit 70)

269. Background noise level in a rural area is typically 25-35 dBA, and is 40-50 dBA in a suburban area. (Applicant's Exhibit 26)

270. The applicant's noise assessment is exhibit 26. The applicant analyzed the potential sound impacts from the quarry utilizing computer modeling and manufacturer's guaranteed maximum sound power levels as follows: (a) Atlas Copco Drill (125.1dBA); (b) Volvo EC290 Excavator; (c) Volvo L90E Loader (105dBA); 1000 Maxtrack Crusher (89 to 115 dBA). (Applicant's Exhibit 26 (Testimony of Kalipinski)

271. Sound impacts of the project operation were modeled using the Cadna A modeling software. (Applicant's Exhibit 26)

212 The parties' noise assessment is exhibit 40. The parties' analyst contended that there were substantive errors in the modeling assumptions utilized in the applicant's noise assessment. The International Standards Organization (ISO) has adopted standards for assessing outdoor noises. ISO 9613-2 governs "Acoustics – Attenuation of sound during propogation outdoors". (See ISO attachment to Parties' Exhibit 60)

273. To create a "worst-case" scenario, the applicant's model was run using manufacturer guaranteed maximum sound power levels with an upward adjustment added to them. The model was run assuming concurrent operation at the maximum level of all equipment. (Applicant's Exhibit 26)

274. Both the applicant and parties' noise consultants acknowledged that having all equipment running at the same time would be a very rare occurrence. The applicant's noise consultant utilized 127 dBA as the sound level for a hydraulic rock drill. The drills which will be used are the Atlas Copco ROC D3 drill with a drilling sound power level of 125.1 dBA, and the Atlas Copco ROC D7 drill with a drilling sound power level of 124.2, both below the figure used for noise modeling. (Applicant's Exhibits 67 and 68 and Testimony of Kalipinski and Kaliski)

275. ISO 9613-2 allows for "spectral" or "non-spectral" calculations of ground attenuation of sound. "Spectral" is valid for flat, consistent grades. The applicant utilized "spectral" in assessing drilling noise levels. "Non-spectral" should have been utilized. (Parties Exhibit 60) (at page 6)

276. The applicant's Cadna A noise modeling concluded that the maximum sound levels (Lmax) at nearby residences and areas frequented by people will be 22 to 51 dBA. Additionally, Lmax levels at the quarry property line would be in the range from 22 to 66 dBA. (Applicant's Exhibit 26)

277. The construction of the aforementioned berm at the quarry staging area will result in a reduction of 5 to 10 dBA in noise levels. (Testimony of Kalipinski)

278. A temporary "kit-of-parts" noise barrier will be constructed at the drill rig during phase of the quarry to assist in noise reduction. (Exhibit 26)

279. Applicant's Exhibit 70 depicts a sample "kit-of-parts" sound barrier.

280. The applicant's modeling of the "kit-of-parts" barrier did not comply with ISO 9613-2. The applicant inappropriately reduced the sound power levels of the drill to account for

a theoretical barrier prior to conducting the propagation modeling. This method is not conservative because all sound receivers are assigned the same sound reduction, even those without a blocked line of sight. (Parties' Exhibit 60)

281. The applicant's consultant identified noise sensitive data in the community and guaranteed equivalent sound data with an increase for a cushion would be used in his modeling. Sound mapping was conducted with spectral attenuation. Noise projections modeled all 6 phases and used a worst case scenario that assumed all equipment would be operating simultaneously and at maximum levels. Monitors were placed roadside near homes representative of the full area near the quarry. There was no need to take measurements at each house as the background levels are similar. (Testimony of McCain and Kalipinski)

282. For each of the six phases, noise was modeled at the Sainsbury, Dansker, Hendrickson, Holden, Larocca, McMullin, Sanders and Sharp residences. In addition, noise was modeled at fifteen points along the property line. (Applicant's Exhibit 26)

283 The modeled noise levels were compared to the FHWA/Vtrans noise abatement guidelines. These guidelines are used as a screening tool in federally funded highway projects to determine whether noise abatement should be considered. For residential areas the standard is 67 dBA Leq (1 hour). (Applicant's Exhibit 26).

284. Roadway noise was modeled at each of the nine nearby residences and indicated that the Leq would increase 1 to 4 dBA. This increase is based on adding 16 one-way heavy truck per hour. Under VTRANS noise criteria, these increases are characterized as "no noticeable change" to "slight increase." (Applicant's Exhibit 26).

285. The applicant's consultant also conducted a screening analysis to gauge changes of roadway sounds at areas such as the Ward Swim Hole. The results of the acoustic screening model are shown in Table 10 of Applicant's Exhibit 26. In summary the increase in Leq ranges from +2.0 dBA at 15 miles per hour down to +1.3 dBA at 50 miles per hour and higher. (Applicant's Exhibit 26).

286. The FHWA and Vtrans characterize noise increases of 0 to 3 dBA as "no noticeable change." (Applicant's Exhibit 26).

287. There are no clear, written community noise standards in the Moretown Town Plan. The Town of Moretown does have a duly enacted zoning ordinance which contains the following noise standard in Article IV, Section 4.10B(1):

> No noise shall be permitted which is excessive at the property line or is incompatible with reasonable use of the surrounding area. Excessive noise shall be considered a sound pressure level that exceeds 70 decibels at the property line on a regular or recurring basis. (Applicant's Exhibit 78

288. Blasting will be limited to approximately 10-12 days during the operating season. Each individual blast will last less than one second. (Applicant's Exhibit 25)

289. During the initial construction phase, when sight distance along Route 100B will be expanded and the quarry staging area will be established, more frequent yet lower intensity blasts can be anticipated. This startup phase is expected to conclude prior to the end of the first operational season. At no time will blasting occur on weekends or federal holidays. In all phases, blasting will normally occur between 10 a.m. and 4 p.m.. (Applicant's Exhibit 26)

290. A typical production blast will utilize up to 8,000 pounds of explosives. (Testimony of Rath)

291. Detonation of explosives results in the transmission of audible sound and an inaudible low frequency wave. Measurement of noise from the detonation of explosives on the audible scale is not appropriate as the scale is not weighted to accurately reflect the frequency of blast noise. (Testimony of Rath)

292. The applicant's use of an "acoustic centroid" in choosing the blast location for purposes of modeling does not appear germane to assessing a quarry operation and was arbitrary and inappropriate under ISO 9613-2 (Parties Exhibit 60).

Moretown Elementary School

293. As found above in the criterion 5 findings, 44 trucks will pass through Moretown Village on an average daily basis. (Applicant's Exhibit 17).

294. The Moretown Elementary School is located in the center of the village. The school is set back from the highway. The two front classrooms are 97 feet from the centerline of Route 100B or 75 feet "from the road" (Testimony of Kalapinski and Parties Exhibit 39, respectively).

295. The applicant performed a separate noise screening analysis of truck impacts for areas along Route 100B not directly affected by trucks on the proposed access road. (Applicant's Exhibit 26) (at pages 21 and 22).

296. The Moretown Elementary School was one of the receptors included in the separate noise screening analysis. The model assumed a factor of 16 heavy trucks during the peak hour at varying speeds and at a distance of 100 feet between noise source and receptor. (Applicant's Exhibit 26).

297. The addition of the applicant's peak hour truck traffic will increase sound levels by a range of less than 1 dBA to approximately 2 dBA (Applicant's Exhibit 26 and Testimony of Kalapinski).

298. As found above, noise increases of 0 to 3 dBA are characterized as "no noticeable change" by the FHWA and VTRANS.

299. The American National Standards Institute (ANSI) developed a 40 dBA maximum hourly standard for background noise in classrooms where background noise is dominated by transportation sources (Parties' Exhibit 39).

300. According to the FHWA, the average sound reduction between the interior and exterior for light framed buildings is 10 dBA (windows open) to 20 dBA (windows closed). Storm windows can provide an addition 5 dBA of attenuation. (Parties' Exhibit 39).

301. The parties' consultant adjusted the applicant's estimates of average noise levels at the school to factor in a distance of 75 feet between the classrooms and the road and for the posted speed limit of 30 mph. Ambient noise levels in the classrooms were estimated at 38 dBA (windows closed) to 48 dBA (windows open). (Parties' Exhibit 39).

302. With the addition of the assumed truck traffic from the project the sound levels increase to 40 dBA (windows closed) and to 50 dBA (windows open). The noise levels could be slightly higher (vehicles traveling over speed limit) or lower (less traffic volumes).

303. The estimated maximum sound levels for vehicles passing by the school at 75 feet ranged from 59 dBA (cruising car) to 74 dBA (cruising heavy truck). (Parties' Exhibit 39) (at page 5).

304. The Moretown Elementary School does not have air conditioning. Classroom windows are opened for ventilation in warmer weather. (Testimony of Barone).

305. The parties' consultant suggested that the applicant conduct sound monitoring of actual vehicle noise levels at the school. (Parties' Exhibit 39). On April 27, 2006, the parties' consultant conducted vehicle noise monitoring at the school. An unloaded 12 cubic yard town truck was used as a sample vehicle. (Parites' Exhibit 66).

306. During the April test (7:05 – 7:30 a.m.), the average sound levels measured in the front classroom were 41 dBA (windows closed) and 49 dBA (windows open). Maximum measured levels ranged from 46 dBA (windows closed and truck at 25 mph) to 53 dBA (windows open and truck at 30 mph) and 56 dBA (windows open and truck at 25 mph) to 60 dBA (windows open and truck accelerating 25 to 30 mph). (Parties Exhibit 66).

307. Based on the April monitoring results with readings of existing sound levels (windows open) some 9 dBa above the ANSI standard, additional truck traffic, while not increasing average noise levels significantly, will increase the number and duration of events highly disruptive to the classroom environment. (Parties Exhibit 66).

308. Under current conditions, the ANSI standard is exceeded in the front classrooms by 1 dBA when windows are closed and 9 dBA when windows are open. (Testimony of Kaliski).

309. The school principal testified that the ongoing noise impacts have persisted for at least 10 years. She also stated that her office during school renovation was located in one of the classrooms facing Route 100B, and at the time, she had difficulty working in the classroom due to existing traffic noise. Students were returned to front classrooms following the renovation project. (Testimony of Barone).

310. Despite continually increasing traffic volumes on Route 100B over the years, since standardized test results have been published in the Moretown Elementary School

annual report, the students have fared very well, generally testing better than students throughout Vermont and nationally. The favorable test results were also consistently achieved by the Moretown 5th and 6th graders who attend classes in the front two classrooms facing the road. (Applicant's Exhibits 76 and 80).

311. No references are made of the existing roadway noise problem in the annual school report, in the annual report on facilities or in the school board minutes. There is presently no plan to address the issue of noise level in the front fifth and sixth grade classrooms. The possibility of installing air conditioners in those classrooms has never been investigated. (Applicant's Exhibits 76 and 80 and Testimony of Barone)

CONCLUSIONS

Under criterion 8, before issuing a permit, the District Commission 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). The burden of proof under criterion 8 is on the parties as opponents to the project. 10 V.S.A. §6088(b). The applicant must provide sufficient information for the Commission to make affirmative findings. See, *Re: Hannaford Brothers Co. and Southland Enterprises, Inc.* #4C0238-5-EB (April 9, 2002); *Re: Southwestern Vermont Health Care Corp.* #8B0537-EB, (February 22, 2001).

Visual Impacts

In evaluating the potential impacts of projects on the values set out in criterion 8, the Environmental Board and District Commissions apply the protocol established by the Environmental Board in its 1985 *Quechee Lakes* decision (Findings of Fact 3W0411-EB and 3W0439-EB). The Board's *Quechee* analysis has been affirmed in a long line of cases (See *Susan Dollenmaier and Martha Dollenmaier Spoor* 3W0125-5-EB (February 7, 2005). In *Quechee*, the Board framed a fundamental question to answer in determining if a project's impacts will be adverse: Will the project be in *"harmony"* with its surroundings and *"fit"* the context within which it will be located? Several specific features must be evaluated, according to *Quechee*, in answering this question. Features relevant to the present application proposal include:

1. *What is the nature of the project's surroundings? Is the project to be located in an urban, suburban, village, rural or recreational resort area? What land uses presently exist? What is the topography like? What structures exist in the area? What vegetation is prevalent? Does the area have particular scenic values?*

2. *Where can the project be seen from? Will the project be in the viewer's foreground, middleground or background? Is the viewer likely to be stationary so that the view is of long duration, or will*

> *the viewer be moving quickly by the site so that the length of view is short?*
>
> *3. What is the project's impact on open space in the area? Will it maintain existing open areas, or will it contribute to a loss of open space?*
>
> *All of these factors must be weighed collectively in deciding whether the proposed project is in harmony with--i.e., "fits"--its surroundings. The land uses which surround a project are crucial to the analysis...*

The Board cited particular categories of land forms which 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 land forms include open space, ridgelines, steep slopes shorelines, flood plains, wetlands and natural areas.

All of the above factors must be applied in a collective analysis to see if the project impacts will be "adverse". If a project 'fits' its context, it will not have an adverse effect. *Re: Talon Hill Gun Club and John Swinington*, #9A0192-2-EB (June 7, 1995).

The Board also provided the following guidance in the interpretation of criterion 8:

> 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 Mountian, Inc. #2W5051-8-EB (December 18, 1986).

Even projects which have an adverse effect can be determined to be within the parameters of Criterion 8 so long as the effect is not undue. *Re: Pike Industries and Inez M. Lemieux*, #5R1415-EB (June 7, 2005).

The Context of the Project

There are multiple contexts to consider for the project's "fit", given the record in this quarry case.

The first context to be considered is the area adjacent to the project tract which includes the party adjoiners, along VT Route 100B and the parties westerly of the Mad River. The evidence supports a conclusion that, with the exception of the proposed access road, no aspect of the quarry operation will be visible from vantage points in this area. While the access road will require construction of improvements along the highway, the end result will not be dissimilar in appearance to other ledge areas visible along Route 100B. With the passage of time, vegetation

will re-establish itself along the length of road disturbed to improve sight distances. During construction along the highway and on the project access road, it will be important that the applicant carefully delineate and protect vegetation to be preserved as a visual screen [See Sheet 3 of Exhibit 4] and the permit will be conditioned accordingly.

The second area requiring consideration for project "fit" is the area on the eastern flank of the Mad River valley running up to the Moretown Common Road and including the lands of the admitted parties. Views from different vantage points within this area look out to the west over the project tract and toward Camel's Hump in the distance. This viewshed is one of forested hillsides with only minimal signs of development in the form of very scattered residential properties. The record has established that parties Sharpwolf, Wichard & Constance Van Heuven and LaRocca will have views of the quarry development phases over time. The visual impacts of this industrial land use – albeit distant from these parties' residences – will not fit with the existing surroundings and are therefore "adverse". The District Commission also concludes that the visual effects will be "adverse" for the members of the public who frequent Moretown Common Road for recreational, tourist and other purposes.

The third area for consideration is along Route 100 and the Mad River. The District Commission under this aspect of criterion 8 evaluates visual impacts and the degree to which a project can actually be seen is the essential question. The record before us indicates that the quarry operation will not be visible from either Route 100B or the Mad River except for quarry walls during the later phases. The duration of anticipated views of the quarry walls can be categorized as glimpses from Route 100B at very limited locations. The rock face of the quarry will be visible from Route 100B traveling north for a period of time. The posted speed limit on Route 100B is at least 40 mph and in some places the prevailing speed is 58 mph. Pedestrians and bicyclists obviously travel at slower rates of speed and would have a longer exposure period. Nonetheless, the exposed rock will be at an elevation several hundred feet above the roadway. From Route 100B traveling south, the rock exposure is expected to be minimal if it can be seen at all. The Commission cannot discern any views of the quarry walls from the river itself. Therefore, the Commission concludes that the effects on this third area will not be adverse.

The Board created three additional tests in Quechee to determine if a project's adverse impacts will be "undue" under criterion 8. If a positive conclusion is reached with regard to any one of the following, an adverse impact is "undue":

1. *Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic, natural beauty of the area? Such standards may, for example, be set forth in the local or regional plan, or be adopted in the creation of an historic design district, or be incorporated into a municipal or State scenic road designation.*

2. *Does the project offend the sensibilities of the average person? The Legislature has directed the Commissions and this Board, composed of lay people from many different communities within Vermont, to determine what is acceptable in terms of new*

> *developments' impact on aesthetics and scenic and natural beauty. If our sensibilities are, collectively, offended by a project, its impact under Criterion 8 is undue. It is not enough that we might prefer to see a different design or style of building, or that we might prefer a different type of land use, but that the project, when viewed as a whole, is offensive or shocking, because it is out of character with its surroundings, or significantly diminishes the scenic qualities of the area.*

3. *Has the applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the proposed project with its surroundings? Such steps may include selection of less obtrusive colors and building materials, implementation of a landscaping plan, selection of a less obtrusive building site within the project area, or reduction of the mass or density of a project. If there are reasonable alternatives available to the applicant that would mitigate the adverse impact of the project, failure to take advantage of those alternatives may, in some circumstances, render undue an otherwise acceptable aesthetic impact.*

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

Under the first factor, the Commission must determine whether the project violates a clear, written community standard "intended to preserve the aesthetics or scenic beauty of the area" in which the project will be located. *Re: Southwestern Vermont Healthcare Corporations,* #8B0537-EB, (February 22, 2001.)

In evaluating whether a project violates a clear written community standard, the Commission 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. The Board explained the intent of clear, written community standard in *Re: Town of Barre,* #5W1167-EB, (June 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.

In *Re: Town of Barre* the Board ruled that a clear, written community standard cannot be a standard that "apply[ies] 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), (Revised) (May 5, 1995). There the Board found that the town plan identified as "significant" the views of the mountains to the east and west and the foreground views from Interstate 89 of "the high ground at the water tower and other open spaces…." The Board found a clear, written community standard "which contains provisions regarding aesthetics" that applied to the project

The Commission therefore, must determine whether there are community aesthetic standards that are applicable to the project. Under criterion 8, precedent establishes that, in order to have a clear, written community standard the language of the purported standard must be stronger than a phrase such as "consideration should be made…." *Re: Barre Granite Quarries, LLC & William and Margaret Dyott*, #7C1079 (Revised)-EB, (December 8, 2000).

The Moretown Town Plan, in Chapter 4, designates the Route 100B/Mad River Corridor (100B Corridor) as being important to the Town's rural character and scenic landscape. (See more detailed discussion of this component of the town plan under criterion 10 below) However, this provision does not meet the tests established in the Board precedents in order to qualify as an applicable community standard for visual impacts of the quarry site from the eastern flank of the valley.

The District Commission concluded above that the proposed project will have adverse visual impacts under criterion 8 on the interests of parties Sharpwolf, Van Heuven and LaRocca and from portions of Moretown Common Road. However, the record does not contain proof of any relevant or applicable "clear, written community standard" and the impacts are thus not undue.

2) 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 Commission 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 surrounding 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, (June 25, 1998).

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.*, #3W041 1-EC and # 3WO439-EB, (November 4, 1985).

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. *Re: Southwestern Vermont Healthcare Corporations*, #8B0537-EB, (February 22, 2001); *Re: OMYA, inc. and Foster Brothers Farm, inc.*, #9A0107-2EB, (May 25, 1999), *aff'd, OMYA Inc. v. Town of Middlebury*, 171 Vt. 532 (2000); *Re: Lawrence White*, #1R0391-8-EB, (April 16, 1998); *Re: George, Mary*

and Rene Boissoneault, #6F0499-EB, (January 29, 1998). Most recently, in *Re: McLean Enterprises Corporation*, #2S-1147-1-EB, (November 24, 2004), the Board found that 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.

The proposed quarry will be visible from limited points across the valley. The views of the quarry operation will be from portions of the Sharpwolf property, not the residence. The Van Hueven and LaRocca residences are more than a mile from the quarry operation. Although the quarry will carve out a clearing in the forested hillside, the clearing will not be a sudden visual effect but will take place gradually over a period of several years and will not exceed an area of 8 acres at any given time. While the resulting view will be, perhaps, a disconcerting change for parties, the effect will not be shocking or offensive. The parties in opposition have not met their evidentiary burden of proof to establish undue impacts under this aspect of criterion 8. Likewise, the same analysis applies to effects on the travelers along Moretown Common Road who will see the project site in passing and within a large forested context with Camel's Hump as the dominant feature. Certainly, the visual appearances of the quarry walls at completion cannot reasonably be adjudged shocking or offensive visual effects.

3) 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 Commission 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 project includes measures to mitigate the impacts on the scenic and visual beauty of the surrounding area. These measures include maintaining more than 80% of the 93 acre project tract as undeveloped and screening the project from nearby and some distant views. The quarry operations, including the crusher and small mobile office building, will generally not be visible from off-site. Portions of the quarry floor may be visible from very limited vantage point. Impacts on the parties will not be undue.

Noise Impacts

The Environmental Board has held that noise is an aesthetic consideration unless the specific factual circumstances of a proposed project present potential noise increases to a level of adverse health effects for review under criterion 1 (Air) *Hannaford Brothers Co. and Southland Enterprises, Inc. 4C0238-5 EB (July 2, 2002); Cf Bull's Eye Sporting Center 5W0743-2 EB (February 27, 1997).* The evaluation of noise impacts on aesthetics follows the analysis set out in the *Quechee Lakes* precedent and its progeny.

The question of whether noise produced by a project is out of character with its setting is a qualitative determination, involving an examination of the type of noise that the project will generate and the neighboring land uses. *Charles and Barbara Bickford* 5W1186-EB (May 22, 1995). Board precedents have long considered that different types of noises must be treated differently. Sharp, intermittent or high frequency noises must be judged differently from low

frequency continuous noises. *McLean Enterprises Corporation, supra, citing Bull's Eye Sporting Center, supra.* In *Bull's Eye* the Board wrote:

> The impact or quality of noise is not entirely reflected by decibel ratings. The degree of noise annoyance must also consider the duration and intermittency of noise. Impulse noises, such as gunshots, are often judged to be "noisier" or more unwanted than non-impulsive noises that have the same total integrated energy.

Thus, the District Commission must first ascertain the "fit" of this proposed quarry operation in the context of the area where it will be located. As found above for visual impacts, the evidence in this case suggests the division of the project's environs into three broad areas for purposes of evaluation under criterion 8. In addition, the record requires an assessment of noise impacts at a fourth area, being the Moretown Elementary School in the Moretown Village.

The first context to consider is the area adjacent to the tract, including the adjoiners and parties westerly of the Mad River. Parties Sainsbury and Dansker's lands are also relevant to this inquiry. VT Route 100B runs through this area and the substantial volumes and types of traffic on this highway are found above under criterion 5. Nevertheless, the topography and forest cover throughout the area serve to sustain a rural setting recognized as peaceful and quiet to the residents. Sound from the quarry operations – trucks on the access road, drilling and blasting at the active faces, and the operation of multiple pieces of processing equipment will be heard at these surrounding lands and residences. The industrial noise from the quarry operation will be qualitatively out of character with the setting and is therefore determined to be an adverse impact.

The second area for consideration of noise impacts is the area on the eastern flank of the Mad River valley. The lands of the admitted parties are separated by significant distances from the quarry tract ranging from 1,500 feet to over a mile. Distance is a valid factor in considering reductions in noise levels. Nevertheless, the District Commission observed during its site visits that traffic noise along Route 100B was discernable along the eastern flank of the valley. The quarry site will be at higher elevations than the highway and sound will be able to radiate across the valley. As noted above, the types of noise that will be generated at the quarry site are currently not present in the setting and the frequency and duration of these sounds will be "givens" during the seasonal quarry operation periods – the same seasons when residents will have windows open in their homes and also seek to enjoy the outdoor qualities of their properties. It would be unreasonable to not conclude that these noise impacts will be adverse on the interests of the parties along the eastern side of the Mad River valley.

The third area encompasses the areas along Route 100B and Mad River. While individuals passing by the project tract may discern the sounds emanating from quarry operations, the impacts on these persons will be transitory. Visitors to these areas where people spend time – such as the Ward Area and the fishing hole to the south – will not hear the operations in any substantial manner, if at all. The noise impacts on travelers and users will not be adverse.

The fourth site requiring consideration is the Moretown Elementary School in the Moretown Village. The weight of the evidence demonstrates that increased truck volumes through the Village due to this project, with associated sound levels, will not unreasonably affect the quality

of teaching and learning. The District Commission observes that the existing setting of the Village includes a state highway with substantial truck volumes present on a rural major collector road. Thus, the noise impacts are not adverse.

Having concluded that noise impacts from quarry operations will be adverse in the areas adjacent to the tract and on the eastern flank of the valley, the District Commission now applies the three additional inquiries under criterion 8 as set out in the *Quechee* line of cases. But the record in this case first requires further threshold analysis of the evidence.

The parties generally asserted that the applicant's noise modeling underestimated sound levels as follows: 1) the drill was located inside the quarry for several phases; 2) the crusher sound power level was based on screening deck levels; 3) quarry walls were considered non-reflective of sound; 4) the sound levels of customer owned trucks were not considered.

The parties further contended that the applicant's sound modeling was flawed by serious errors in modeling assumptions: 1) the concept of "acoustic centroid" was not germane and the only use of this assumption in the field of sound analysis is for acoustic torpedo targeting; 2) the modeling considerations of the kit-of-parts barrier failed to comply with the ISO 9613-2 standard; 3) the ISO standard that should have been employed for ground attention calculations is "spectral" rather than "non-spectral" and 4) the modeling failed to consider several residences near the quarry site as potential noise receivers.

The applicant's consultant and the parties' consultant differed in opinion as to the proper inputs for the CADNA A model. Both used the CADNA A. The parties' witness, having selected his own inputs, was only able to identify one location that would reach the 55 dBA standard and one that would exceed it. The Commission recognizes that computer modeling is equal parts art and science. *See Pike Industries, Inc. and Inez Lemieux,* # 5R1415-EB (June 4, 2005). The two exceedances pointed out by the parties' expert do not convince the Commission that the applicant can not comply with a permit condition limiting noise emission to 55 dBA at residences and 70 dBA at the quarry property lines.

Although the parties questioned certain inputs, they did not produce their own more credible modeling. The applicant's modeling predicts that the project will comply with the Act 250 noise standards. If applicant 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 Act 250 noise standards.

In *McLean Enterprises Corporation,* at 66 (November 24, 2004), 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 has considered other options including a relative standard, ultimately, the Board deferred overhauling the noise standards for another day stating as follows:

> 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 at 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.

1) Does the project violate clear, written community standard intended to preserve aesthetics relative to sound levels?

The Moretown Town Plan does not contain a clear written community standard regarding noise. Zoning regulations can also provide a source of clear, written community standards. *Re: Burlington Broadcasters, Inc., at al*., #4C1004R-EB, (November 25, 2003). A noise standard is set out in the zoning regulations in Article IV, Section 4.10(B)(1). That noise standard is as follows:

> (1) No noise shall be permitted which is excessive at the property line or is incompatible with the reasonable use of the surrounding area. Excessive noise shall be considered a sound pressure level that exceeds 70 decibels at the property line on a regular or recurring basis.

This noise standard which is found in the article entitled "General Regulations" applies, without limitation, to the entire Town. This standard does not apply uniquely to a resource that the community considers to be of special importance. Rather, it is a standard of general application throughout all districts and applicable to all land uses. As a regulation of general application, Article IV Section 4.10 does not meet the specificity requirement, although, as is found below, the 70 dBA property line standard will apply.

While Article IV Section 4.10 contains the only numerical noise standard, there are instances where a clear written community standard for noise is present, although it may not be expressed numerically. In *McLean Enterprises Corporation*, supra, at 58, the following provision of the Cavendish Town Plan was determined to be a clear written community standard:

> 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.

Similarly, the following was determined to be a clear written community standard in *Re: Dominic A. Cersosimo and Dominic A. Cersosimo Trustee and Cersosimo Industries, Inc.*, #2W0813-3(Revised)-EB, at 10 (April 19, 2001):

> The extraction and processing of minerals or 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 each case, the clear written community standard was found in a section of the Town Plan applicable to a particular area or land use. In *Cersosimo*, the provision was entitled "Earth Resources." In *McLean* the relevant provision applied to earth resources extraction sites. The

standard in Cersosimo was based on the words "inconvenience" and "burden." The standard in *McLean* derived from the word "nuisance."

The only section of the Moretown zoning regulation that applies with particularity to a quarry is Article III, Section 3.5, Extraction of Earth Resources. The standard found in that section is whether or not the project will "cause a hazard to public health or safety, or otherwise have an undue adverse effect…." zoning regulations at page 11. This standard is not equivalent to the language that the Board relied upon in *McLean* and *Cersosimo*, where the Board imposed a 50 dBA Lmax limitation based on language in the Cavendish and Vernon Town Plans, respectively.

In both of those cases, the Board reasoned that if under the standard set in *Re: Barre Granite Quarries, LLC & William and Margaret Dyott*, #7C1079 (Revised)-EB, at 72 (December 8, 2000), for criterion 8 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.

Article III, Section 3.5 of the Moretown zoning regulation applies to a particular land use (extraction of earth resources) and is intended to preserve the aesthetics of the area, therefore, it is applicable under criterion 8. The standard has two components: (1) whether the project presents a hazard to public health and safety; and (2) whether the project has an undue adverse effect. Unlike *McLean* and *Cersosimo*, neither component requires something more restrictive than that which has been traditionally applied in Act 250 cases. In fact, the "public health and safety standard" is more akin to the noise standard imposed under criterion 1 (Air). See *Re: Casella Waste Management, Inc. & E.C. Crosby & Sons, Inc.*, 8B0301-7-WFP, at 27 (May 16, 2000) (EPA standard of 70dBA 24 hours/day, 365 days/year in a lifetime for health and safety considerations of noise). The undue adverse affect component of Section 3.5 is a well established one. It only requires quarry operators to mitigate noise impacts.

Thus, the language of Article III, Section 3.5 imposes the same requirements as the mitigation requirement discussed and required below. Although the language in the Moretown zoning regulation is applicable under criterion 8, it does not require the Board to impose a lower dBA Lmax standard.

2) *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?*

The District Commission has considered the evidence in this case in order to carefully evaluate the effects of noises from the quarry operation on the areas adjacent to the tract, westerly of the Mad River and on the eastern flank of the Mad River Valley. The Commission's evaluation included review of the Board precedents presented in the *McLean* quarry decision. While on the whole, noise level from the quarry operation may be from time to time annoying to the parties, it will not dramatically interrupt the setting and will not disrupt day to day living. The parties adjacent to the project tract and westerly of the river already experience the variety of

sounds that emanate from the daily flow of traffic along the state highway. These parties will experience increased truck sounds as a result of the quarry but the differences in elevations – most of the parties being at lower elevation from the quarry area – will reduce or dampen most sound from the quarry process zone. The parties on the eastern flank of the valley may be subject to "line of sight" noise effects but distance will serve to lessen the impacts. The anticipated noise levels from a working quarry at this location does not offend the sensibilities of the District Commission and, accordingly, is not determined to be shocking or offensive.

3) *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?*

The District Commission takes note of all findings under all criteria that articulate the limitations on the months, days and hours of proposed quarry operations. By permit condition, the Commission will also make it explicit that the quarry may not operate on any state or federal holidays. Also by permit condition, the use of warning whistles prior to blasts on the site will be disallowed and the applicant will be required to propose an alternative warning method. The Commission is unable to conclude that the applicant's evidence adequately and explicitly evaluated the noise impacts of such whistles.

In its *Barre Granite* decision, the Board set maximum allowable noise levels establishing that noise is unduly adverse at 55 dBA Lmax at any residence or outdoor area of frequent use and 70 dBA Lmax at the property boundaries. Thus, the Board has historically used permit conditions to set maximum sound levels to alleviate a project's undue adverse impact. In *McLean* the Board recognized the advantages of using a set Lmax noise level – it is easy to understand, predictable and enforceable because it sets a bright line. At the same time, the Board recognized the limitations of the Lmax standard – the standard only regulates the maximum permissible noise level, not the frequency that permissible maximum can be reached. The Board held that "constant noise at or slightly below the maximum permissible level may be unduly adverse in certain circumstances". *McLean* at page 64.

As we concluded above, the parties' expert, having selected his own inputs for the CADNA A model, identified only one location that would reach the 55 dBA standard and only one location at which it would be exceeded. These two theoretical exceedances do not support a conclusion that the parties have met their burden of proof under this aspect of criterion 8. In other words, the preponderance of the evidence favors the applicant's case and a conclusion that the project can be operated in accordance with the mitigating permit requirements that noise levels not exceed 55 dBA at residences or any area of outdoor frequent human use and 70 dBA at the property boundaries.

SECTION 6086(A) (WILDLIFE AND ENDANGERED SPECIES):

312. The significant habitat map for the Town of Moretown, published by the Agency of Natural Resources, does not indicate any rare, threatened or endangered species or significant natural communities on the project tract. (Applicant's Exhibits 3 and 77)

313. The Department of Fish & Wildlife has determined that approximately 2 to 4 acres of deer wintering habitat on the project tract qualify as "necessary wildlife habitat" pursuant to 10 V.S.A. 6001(12). (Applicant's Exhibit 28)

314. The quarry operations will disturb approximately 4 acres of deer winter shelter area. (Applicant's Exhibit 28)

315. The impact will be minimized by the limited season of quarry operation from April 15 to December 15 each year. Stockpiled materials will only be accessed with the prior approval of the Department of Fish & Wildlife. (Applicant's Exhibit 3)

316. The impact will be further mitigated by the implementation of a forest management plan that will focus on habitat enhancement practices. The Department of Fish & Wildlife has approved the applicant's proposed mitigation measures and the land use permit will be conditioned accordingly. (Applicant's Exhibits 23, 27, 28 and 55)

317. The Department of Fish and Wildlife has concluded that the management plan for a 46.8 acre portion of the tract, which will remain undisturbed, is suitable for the purpose of maintaining and enhancing the quality of the deer winter habitat associated with the project. (Applicant's Exhibits 48 and 55)

Therefore, the Commission concludes that the project will not destroy or significantly imperil necessary wildlife or endangered species habitat.

SECTION 6086(a)(9)(A) (IMPACT OF GROWTH):

318. The project may result in the creation of 6 new jobs. It is expected that 3 of these jobs will be filled by individuals not currently living in the local area. Annually, approximately 300 new jobs are created in Washington County. (Applicant's Exhibit 46)

319. As found above under criteria 6 and 7, the project's need for municipal services will be minimal. Access to the site will rely on the state highway system.

320. The largest municipal expense in the Town of Moretown is for roads and highways, equaling $302,536 of the total 2005 General Fund Budget of $648,022. (Applicant's Exhibit 46)

321. The undeveloped tract is currently assessed at $82,500 and generates $247.75 in municipal taxes, excluding school taxes. (Applicant's Exhibit 3)

322. If the project is developed as proposed, based on current tax rates, the tract will generate $453.45 in municipal taxes, an increase of $205.70. (Applicant's Exhibit 3)

323. The Town of Moretown's tax base is almost entirely residential. (Testimony of Hoogenboom)

324. The Town of Moretown has one of the lowest effective municipal tax rates in Washington County and the entire state. (Applicant's Exhibits 76 and 87)

325. Expert witnesses, an economist for the applicant and an appraiser for the Town, concurred that there will be some level of adverse economic effects on the Town's grand

list from the operation of the quarry, primarily from noise and less so from visual impacts. (Applicant's Exhibit 66, Parties' Exhibit 32 and Testimony of Heaps and Friihauf).

326. The applicant's economist predicted that there will be a maximum 5% reduction in property values for the area immediately surrounding the quarry, or roughly within 1/3 of a mile from the project. The economist's prediction was based on an analysis of published studies and a judgement informed by his direct observations of outcomes in other Vermont towns with quarries. (Applicant's Exhibit 66 and Testimony of Heaps)

327. The applicant's economist further established that adverse impacts on property values from the project will decline the further from the project tract properties are located. Adverse impacts will also decline over time after project impacts are experienced and are no longer subject to conjecture and exaggeration. The stages of a development can be categorized as "rumor, construction operations and operations five years plus". (Applicant's Exhibit 66 and Testimony of Heaps)

328. The appraiser for the Town developed a methodology with input from an economist in order to determine potential quarry impacts on property values. The Town's methodology for evaluating the quarry's potential impact on property values is a "best practice" approach for the analysis of economic and fiscal impacts and was a reasonable alternative to individual property appraisals. The Towns' appraiser has had significant experience with Moretown properties and studied Moretown property values. (Parties' Exhibit 32 and Testimony of Friihauf)

329. The Town's appraiser based his report on the principle that people reside in Moretown because it is "clean, safe and quiet". Real estate value is driven not only by "location" but also by "perception". In other words, if public perception is such that a desirable aspect of real estate will be diminished in the future, the public tends to either not purchase or purchase for less. (Parties' Exhibit 32)

330. The Town's appraiser concluded that the impacts of the quarry operation, primarily the new sounds of industrial activities, will depreciate at least 93 Moretown properties by 10% to 50% depending on the property's location and unimpaired value. (Parties' Exhibit 32 and Testimony of Friihauf)

331. A property value loss of 10% for the 93 properties calculates to $2,405,520 and a loss of 50% calculates to $12,027,600. Several of the properties on Moretown Common Road have assessed values above $300,000 and would suffer the largest loss of property value. (Parties' Exhibits 32 and 69)

332. Based upon the theoretical losses of property values stated in the previous finding, the potential decrease in tax revenues to the Town of Moretown would range from $44,021.02 to $220,105.08. (Parties' Exhibits 44 and 45)

333. The State of Vermont Appraiser believes that the proposed quarry is a detriment to property values for certain Moretown properties (Parties' Exhibit 69).

334. Subsequent to the District Commission hearings, the Falkenbush property, located on Route 100B close to the project tract, was sold. This property sold for $73,000 more than the assessed value cited in Parties Exhibit 32. The sale price was 28.99% more than the property's assessed value. (Applicant's Exhibit 108)

335. The Moretown Selectboard views a loss of $44,021 in annual tax revenues as a bar to the performance of "critical safety-related infrastructure projects" which include sidewalks in the Village, repairs to flood-prone River Road, repairs to Town Hall and repair to the closed Lovers Lane bridge. (Testimony of Mastroberardino and Hoogenboom)

336. The Town of Moretown does not have a duly adopted capital improvement program. (Applicant's Exhibit 3)

CONCLUSIONS

Applicants have the burden of producing threshold evidence under criterion 9(A) in order to support affirmative findings while the burden of proof to demonstrate undue impacts is upon opposing parties. *St. Albans Group and Walmart Store, Inc.* 6F0471-EB (Altered) (June 27, 1995); aff'd 167 Vt 75 (1997); 10 V.S.A. 6086(a)(9)(A). The burden of proof is upon the applicant only if the town has a duly adopted capital improvement program.

Criterion 9(A) requires District Commissions to consider the financial capacity of the town and region to accommodate growth. The word "growth" in the criterion applies to economic, as well as population, growth. *St. Albans Group, supra*. The Commission is cognizant, as pointed out by the applicant, that the Environmental Board held in *Home Depot USA, Inc. and Ann Juster and Homer and Ruth Sweet* 1R0048-12-EB (August 20, 2001) that if a project will not cause or encourage increased residential or commercial growth beyond that which will occur in the region without the project, then a conclusion can be supported that the project complies with criterion 9(A).

Criterion 9(A) has been viewed as the essential criterion of Act 250 for the evaluation of the fiscal impacts of development. The last sentence of the criterion, in clarifying the burden of proof, reiterates the intent of the criterion: whether the proposed development will significantly affect existing or potential capacity of the town to accommodate such growth. This is the logical criterion under which to consider claims that a proposed development will significantly affect the capacity of the town even absent actual growth. The Vermont Supreme Court's decision upholding the Board's *St. Albans Walmart* decision appears to support such a perspective on criterion 9(A). The Court stated:

> ….Criterion 9(A) requires consideration of the cost of "education, highway access and maintenance, sewage disposal, water supply, police and fire services and other factors relating to the public health, safety and welfare". A municipality's ability to pay for these services depends on its tax base, that is, the appraised value of property in the municipality's grand list. To the extent that a project's impact on existing retail stores negatively affects appraised property values, such impact is a factor that relates to the public health, safety and welfare.

The District Commission understands that the facts of the *St. Albans Walmart* case involved the potential impacts under criterion 9(A) of a large retail development. At the same time, criterion 9(A) needs to be given meaning for all "development" categories reviewed under Act 250 because the statute exempts none, such as earth extraction projects. Thus, the possible negative effects on a town's appraised property values are germane under criterion 9(A) for quarry extraction projects in order to evaluate impacts on the tax base available for the continued provision of public services.

The claims advanced by the Town concerning potential property depreciations from the proposed quarry, and resulting loss of existing tax revenues, are a question of first impression for the District Commission and, absent any guiding precedent from the Environmental Board (neither applicant nor parties brought any to the Commission's attention), this criterion is an appropriate context for evaluating the evidence in this case.

As found above in finding #325, both the applicant and parties' experts agreed that the quarry will cause some level of adverse economic effect on the grand list, primarily from noise and less so from visual impacts. Thus, the Commission must arrive at a conclusion as to the degree of economic effect likely to result on the grand list and then whether said effect will be an undue burden. Should any undue burden upon the town be identified, the District Commission is required under criterion 9(A) to impose permit conditions which would prevent the undue burden.

The Commission has weighed the evidence provided by the expert witnesses for the applicant and parties and concludes that the applicant's case presents a more credible and probable outcome – that the maximum extent of adverse economic effects on the Town's grand list from the quarry operation will result within roughly one-third of a mile of the project site, the area immediately surrounding the industrial land use. The applicant's expert did not quantify the financial implications of the maximum 5% reduction in property values that may occur. The Commission will not attempt its own calculations on the possible effects on property values within one-third of the quarry site. However, it may be deduced that the potential maximum decrease in tax revenues to the Town will be substantially less than the $44,021 estimated by the parties' expert. While the quarry operation – at least in the initial "rumor" phase – may have adverse effects under criterion 9(A), the adverse effects will not be undue. Moretown's tax rate is relatively low so any minimal adjustment resultant from the proposed land use will not be unreasonable.

While the fiscal criteria of Act 250 are related, and the above-referenced findings apply equally to criteria 6, 7, 9(H) and 9(K), the conclusions herein are specific to criterion 9(A).

SECTION 6086(a)(9)(B) (PRIMARY AGRICULTURAL SOILS):

337. The tract does not contain primary agricultural soils. The soils are classified as Tunbridge-Lyman Complex with 15% to 25% slopes and are very rocky. (Applicant's Exhibit 3)

SECTION 6086(a)(9(C) (FOREST AND SECONDARY AGRICULTURAL SOILS):

338. The soils on the tract do not have high productivity potential for commercial forestry or commercial agriculture. Tunbridge-Lyman soils are in Forest Value Group 5, which have low potential productivity. (Applicant's Exhibit 41)

SECTION 6086(a)(9)(D & E) (EARTH RESOURCES & EXTRACTION OF EARTH RESOURCES):

(E)(i) Impact on Environment and Surrounding Land Uses

339. The District Commission incorporates by reference findings stated under criteria 1, 3, 4, 5, 8 and 10 (town plan).

340. The applicant proposes to extract rock from the project tract. No other development is planned. The stone crushed at the project will be sold to wholesale and retail customers including local towns and construction contractors. (Applicant's Exhibit 2 and Testimony of McCain and Rivers)

341. Based upon two samples taken from the site, the rock deposit underlying the project tract has been classified "very hard". It was further described as being of high quality in terms of suitability for the construction and reconstruction of highways, erosion control, drainage and septic systems. (Applicant's Exhibit 7 and Testimony of McCain and Rivers)

342. The extraction will take place in phases over a period of thirty-three years. The thirty three year life of the quarry is premised on an annual maximum extraction rate of 75,000 cubic yards of material. (Applicant's Exhibit 2).

343. The estimated phased extraction rates are: Phase 1 – 68,000 cy; phase 2 – 291,000 cy; phase 3 – 510,000 cy; phase 4 – 267,000 cy; phase 5 125,000 cy; phase 6 – 721,000 cy. (Applicant Exhibit 2). As found above in finding #8, the quarry will not necessarily be developed in the numerical sequence depicted on Applicant's Exhibit 4.

344. A total estimated volume of 1,982,000 cy of rock will be extracted. Once crushed, this will equate to approximately 2,500,000 cy of material due to expansion or "fluff" factors. (Applicant Exhibit 2).

345. Equipment staging and material processing areas and material stockpiles will be relocated on the site as extraction progresses. (Applicant's Exhibit 2)

346. Access to the quarry walls will be restricted by a row of boulders and/or construction fencing which will be placed around the perimeter of the quarry. Vehicular access to the quarry will be restricted with a locked gate. (Applicant's Exhibit 2 and Testimony of McCain and Rivers).

347. No fuel or explosives will be stored on site. Explosives will be brought to the site the day of the scheduled blasts and any unused explosives shall be removed from the site. Fuel for the equipment shall be delivered to the site as needed. (Applicant's Exhibit 2).

Blasting

348. The proposed quarry will involve blasting. The applicant provided expert testimony regarding blasting. The applicant's blasting consultant for the project developed a blast plan. (Applicant's Exhibit 25)

349. The applicant has not entered into a contractual agreement with the firm that produced the blast plan to perform the blasting at the proposed quarry. Another firm may find the Exhibit 25 plan too restrictive and develop an alternative plan. (Testimony of Rath)

350. The applicant has proposed mitigation measures relative to blasting including: a call list of property owners who would be provided notification of blasting events; employing a series of warning whistles to announce upcoming blasts; conducting preblast inspections of structures; using seismographs to record ground and air vibration. (Applicant's Exhibits 2)

351. During the first phase of development, approximately 30 blasts will be necessary to produce benches of sufficient length and height to permit production blasting to occur. (Applicant's Exhibit 12)

352. Also during the first phase, rock will be removed along Route 100B to increase the sight distance. Relatively small blasts will be required. If the entire sight line area is composed of ledge then approximately 150 blast holes, each of 10 to 15 foot depth will be required to remove the ledge. The explosive charge per blast hole will likely be in the range of 10 to 35 pounds per hole. Blasting mats will be used as needed for the work adjacent to Route 100B. (Applicant's Exhibit 25 and Testimony of Rath)

353. Traffic on Route 100B will be stopped when blasting occurs along the highway. Traffic will not need to be stopped on 100B for blasting within the quarry. (Testimony of Rath)

354. Once production blasting commences, the 75,000 cubic yard maximum annual volume should be produced in 10 to 12 blasts annually. One blast will be required every 1 ½ to 2 weeks, with approximately 5 days of drilling for each blast. The number of blasts can be reduced by increasing the number of holes shot at once. (Applicant's Exhibit 25 and Testimony of Rath)

355. A typical production blast will involve 62 drilled holes of 3.5 inch diameter and 42 foot depth. The blast plan shows holes being drilled on an 8 foot by 9 foot grid. The first row of holes would be drilled 8 feet from the face and the next row eight feet behind the first. (Testimony of Rath)

356. Approximately 900 feet per day can be drilled using one drill. In general, the harder the rock, the longer the drilling periods. (Testimony of Rath)

357. Blast patterns will be surveyed and laid out using a laser profiler. Laser profiling will generate a three dimensional view of the exposed face that allows the blaster to maintain proper blasthole loads in the critical face area. The laser profiler and related software allows the user to lay out blast holes to calculate minimum burden (distance from blasthole centerline to free rock face). (Applicant's Exhibit 25 and Testimony of Rath)

358. Drill holes will be analyzed using a bore tracker. This device is used to generate a cross section through each blast hole which shows the actual burden at 2 foot intervals over the depth of the blast hole. (Applicant's Exhibit 25 and Testimony of Rath)

359. Each hole will be loaded with explosives. The amount of explosives will be carefully measured as it is pumped from the delivery truck. Each hole would contain a maximum of 128.2 pounds of explosives. A typical production blast will contain approximately 8,000 pounds of explosives. (Applicant's Exhibit 25 and Testimony of Rath)

360. Blasting agents will not be stored on site. Explosives are stored offsite at facilities owned by blasting companies. They are delivered to the site as needed following the drilling of all of the blast holes needed for a shot. Any unused explosives will be returned and will not be stored on site. (Applicant's Exhibits 2 and 25 and Testimony of Rath)

361. The applicant provided a list of blasting compounds that will potentially be used at the quarry. Several of these compounds contain very limited amounts of heavy metals. Certain of the detonators contain a de minimis quantity of perchlorate, depending on the length of the timing delay. Detonators that contain perchlorate are designed such that the fuel for the detonation reaction is out of balance with the oxidizer (perchlorate). Thus, the perchlorate is consumed in the reaction. (Applicant's Exhibit 71 and Testimony of Rath)

362. Blasts will occur in a delayed fashion. The charges are timed such that rows of holes are detonated in sequence beginning at the rock face and working backward from the face into the undisturbed rock. By detonating the blasts in this delayed manner, the effect of the blast is the equivalent of firing a single charge of 128.2 pounds. (Applicant's Exhibit 25; Testimony of Rath)

363. Seismographs will be placed at houses closest to blast area and in other areas of concern as needed to gauge the amount of vibration and any damage resulting from drilling. If the property owner denies access, the seismograph can be placed on a property line as close to the house as possible. (Applicant's Exhibits 2 and 25 and Testimony of Rath)

364. Blasting produces two types of shock waves, ground vibration and airborne shock waves or air overblast. (Testimony of Rath)

365. A correctly designed and executed blast generally results in more pronounced ground vibration behind and to the sides of the blast rather than to the front of the blast. Airborne shock waves, on the other hand, will often be greater in front of the blast due to the sudden displacement of the quarry face. (Applicant's Exhibit 25)

366. It will often be possible at the project site to orient blasts in such a way as to direct the airborne shock waves in a harmless direction. (Testimony of Rath)

367. The degree of ground vibration is measured in inches per second (ips). The United States Bureau of Mines ("USBM") has developed recommended maximum ground vibration standards. Most authorities have concluded that two inches per second is acceptable at 40 Hertz. The average household will tolerate 5.4 inches per second before threshold damage, that is, hairline cracks in plaster, will occur. (Applicant's Exhibit 25 and Testimony of Rath)

368. The primary method of controlling blast impacts is to limit the weight of explosives detonating within an 8 millisecond period. For example, 100 holes, each loaded with 200 pounds of explosive all detonated at the same time is the equivalent of a 20,000 pound blast. If the detonation of the holes is separated by at least 8 ms then the effect is as if one single 200 pound detonation occurred. (Testimony of Rath)

369. A correctly designed blast uses detonation energy to fracture rock rather than allowing it to transfer into the ground and cause vibration. As vibration waves move from the point of detonation, they lose energy due to deflection in the rock and dispersion over a larger area—similar to a splash dispersing in a pond. (Testimony of Rath)

370. Ground vibration predictions were calculated using the closest distance that a blast will ever be to abutting residences (approximately 720 feet). As the abutting residences are the closest sensitive structures, the distance to the residences will impact blast design parameters. The blasts that occur closest to the nearest residence are smaller than a full production blast as they are part of the initial start up phase. (Applicant's Exhibit 25 and Testimony of Rath)

371. Ground vibration calculations were made using an equation which is nearly ubiquitous in the blasting industry in order to predict peak particle velocity (PPV). The applicant's consultant uses the "Upper Bound" PPV calculation because the resulting number is greater than actual PPV as recorded by seismographs in 90% of the cases. (Applicant's Exhibit 25 and Testimony of Rath)

372. Using the Upper Bound, the calculation indicates a maximum charge weight of 543 pounds at a distance of 720 feet would be required to attain a PPV of 1 inch per second (in./sec.) which is half of the level which most authorities consider safe. Simultaneous detonation of four 42 foot holes would be required to attain this PPV. (Applicant's Exhibit 25)

373. Using the Upper Bound and a total pounds per delay of 128.2, the predicted PPV is .26 in./sec. (Applicant's Exhibit 25)

374. A test blast was conducted at the project site on July 16, 2003 and another on July 17. The PPV predicted by the Applicant's consultant's calculations was actually three times higher than the actual readings as measured by the seismograph. Thus, the actual blasts are designed with a large margin of safety. (Testimony of Rath)

375. Air overblast is measured on a linear (L) scale rather than the non-linear (dBA) scale with which noises humans can perceive is measured. A linear scale is used in order to accurately record air overblast which may cause damage to structures. (Applicant's Exhibit 25 and Testimony of Rath)

376. For purposes of developing the blasting plan, the applicant's consultant used the USBM recommended overpressure limit of 134 dB as a baseline. This limit is the equivalent of a 20 to 28 mph wind. (Applicant's Exhibit 25)

377. Using the scaled distance method from the ISEE, the applicant's consultant concluded that the recommended air overpressure could be met using up to 5,345 pounds per delay of explosives. This is 42 times the amount that is proposed to be used. (Applicant's Exhibit 25)

378. Air blast can be controlled by confining explosive in blast holes using adequate stemming, avoiding mud seams and voids in blast holes, ensuring that there is adequate burden, and increasing the delay between rows. (Testimony of Rath)

379. Air blast and damage due to flyrock can further be controlled by orienting blasting events away from existing structures and roads. (Testimony of Rath)

380. Incidence of high air blast and flyrock can be drastically reduced with the use of laser profiling and bore tracking. (Testimony of Rath)

381. Party Hendrickson expressed concern regarding potential damage caused by blasting, with particular reference to flyrock. (Parties' Exhibit 50 and 62)

382. The applicant's consultant testified that the majority of the accidents reported by party Hendrickson likely resulted from overloading holes—a danger that is tremendously reduced by the use of laser profiling and bore tracking. The applicant's consultant testified that he is not aware of any flyrocks that occurred as a result of his company's blasting since it started using the bore tracker technology. (Testimony of Rath)

383. Blasts will be monitored by a seismograph to record: (a) maximum decibel levels on a linear scale; and (b) particle velocity in inches per second. The applicant will maintain a seismic recording log. (Applicant's Exhibit 25 and Testimony of Rath)

384. Based upon the data obtained from the seismograph, blast design can be adjusted as appropriate. (Testimony of Rath)

385. Prior to the commencement of blasting, the structures on properties adjoining the project will be inspected (with the owners' permission) to document the condition of those structures. Pre-blast structural surveys generally include inspections of foundations, walls and other structural components of buildings. (Testimony of Rath)

386. The seismic logs will be used as an aid in determining whether blasting contributed to any damage to structures. Visual inspection will also be important. Cracks in

foundations and drywall have readily identifiable characteristics if they are attributable to blasting. (Testimony of Rath)

387. Concern was raised by Party Hendrickson and Party Holden regarding the impact of blasting on mobile homes. Party Hendrickson submitted a report detailing a study which was done on blast damage to mobile homes. (Parties Exhibit 62 and Testimony of Hendrickson and Holden)

388. The applicant's consultant testified that mobile homes generally tolerate ground vibration better than other types of construction. Further, the damage detailed in the mobile home study is not likely to occur at the project. In order for that damage to occur, the ground waves need to be of similar frequency to the harmonic oscillation of the mobile home. (Testimony of Rath)

389. All structures have a natural harmonic oscillation—buildings vibrate at a very low frequency. If the normal harmonic oscillation of a building coincides with the frequency of a traveling sound wave, the two vibrations will add to one another and damage to a structure may result. This can be controlled by proper blast design. (Testimony of Rath)

390. The damage noted in the mobile home report was caused by low frequency vibration with high PPV. Small charges, like the size proposed for the project, produce exactly the opposite of what is required to match the harmonic oscillation of a building. Small charges produce low PPV and high frequency. (Testimony of Rath)

391. Party Holden Estate presented testimony regarding damage to a mobile home previously located on a parcel adjoining the project tract. However, party Holden acknowledged that the insurance company insuring that property concluded the damage to the mobile home was caused by water runoff and not the Applicant's test blasts. (Testimony of Holden)

392. There is no state regulatory agency that reviews and approves the technical aspects of a blast plan. Some Vermont towns have standards. The Town of Moretown does not have standards. (Testimony of Rath).

393. A blast plan could be designed for this project site to prevent damage but not vibration. (Testimony of Rath).

Surrounding Land Uses

394. As found above under criterion 8, the lands abutting the project tract are used as rural residences and undeveloped forest lands.

395. In close proximity to the tract are the residences of other parties located off Old Route 100.

396. Overall, there are 16 rural residences within a half-mile radius of the proposed quarry site and an additional 28 residences within a mile of the site. (See Parties' Exhibit 58, attachments 2 and 5 and Testimony of Raphael)

397. Two equestrian facilities are operated in the area surrounding the project site on the lands of parties Sainsbury and McMullin. In addition to the barns and pastures, these facilities rely on a network of riding trails. Riders sometimes use the shoulder of Route 100B. (Parties' Exhibit 58 and Testimony of Sainsbury and McMullin).

398. The 400± acre Sainsbury tract lies across the Mad River from the quarry site and largely at lower elevations. The tract has approximately 1½ miles of river frontage. The Sainsburys have operated Cross Haven farm since 1993. (Parties' Exhibit 58)

399. The 25 acre McMullin tract is located off Old Route 100 and at lower elevations than the project site. The McMullins have operated Mad River Stables since 1976 (Parties' Exhibit 2 and Testimony of McMullin)

400. The Sainsbury and McMullin equestrian facilities serve school children and other members of the community with beginner instruction and riding lessons, boarding and long term support of local youth in national riding competitions. (Parties' Exhibit 58).

401. Horses tend to evade or run from predators or threats. While background noise levels may not have harmful impacts, sharp and unexpected noises would have dangerous implications for transient horses brought to these farms. The horses could be "spooked". (Testimony of Lott).

402. An equine facility owner could be sued for injury to a client by a horse spooked by quarry noise if the client was not specifically warned of the noises that might come from the quarry. The Vermont Equine Activity Statute (12 V.S.A. 1039), which was designed to protect equine facility owners, would not apply in this case. (Testimony of Ebert)

403. There are two types of noise that are of concern to the operators of equine facilities – the first includes the noise from blasting, drilling, and crushing. The second includes associated noises such as loading trucks, truck gates crashing shut, and trucks accelerating, braking and down shifting. These noises are characterized by their rapid onset and potential to scare horses as opposed to passing trucks on Route 100B which are characterized by a slower increase in sound as the truck approaches, an increase to a maximum level as it passes, and then a slow diminishing level as the truck departs. (Testimony of Ebert)

404. There would be a significant business risk to the equestrian facilities near the quarry (in addition to the litigation risk described above). This would be the result of current users of their facilities leaving because of real and perceived risks and unpleasant conditions, and a failure to attract new riders for the same reasons. The farms could be forced out of the equine business. (Testimony of Ebert)

405. Based on adverse experience at the Cross Haven farm during a test blast at the proposed quarry site, horses will not be left outside during blast periods. Having personnel go out and bring 20 horses in, at five minutes per horse, amounts to 100 minutes, and then another 100 minutes to take them back out. It will be a complicated process since staff is typically around early mornings and late afternoons only. (Testimony of Sainsbury)

406. The Mad River Icelandic Horse Club has held clinics at the Sainsbury farm and consistently sells out because of the site's access to I-89, its setting and the quality facilities. (Testimony of Peale)

407. Riders and horses at the Icelandic clinics are often first time visitors. New inexperienced nervous riders could be at risk on spooked horses. (Testimony of Peale)

408. A marketing researcher with 25 years experience in analyzing consumer perception data reviewed the results of questionnaires made available to individuals who have utilized, or may utilize, the Mad River Valley equestrian facilities. The questionnaires were intended to obtain opinions on perceptions of the existing equestrian facilities and the effects of the quarry operation. (Parties' Exhibit 36 and Testimony of Wicklund)

409. Among other results, the questionnaires indicated that the perception of 96% of 49 current and potential horse farm customers is that the quarry operation will make the equestrian facilities more risky for horses and equestrians and 98% felt that the riding and handling of horses will be more dangerous. (Parties' Exhibit 36 and Testimony of Wicklund)

410. The McMullin facility is also used during summer months as a "horse camp" for children. Special needs children gain confidence from the experience of horse handling and riding. (Testimony of McMullin).

411. The noise levels from the quarry operation could affect the existing quiet aesthetic setting of Mad River Stables and result in unsafe conditions. (Parties' Exhibit 54).

412. Equine facilities have been operated safely within one half mile of an operating quarry and immediately adjacent to a highway. (Testimony of Peeples and Sprano).

(E)(ii) Rehabilitation Plan and Approved Alternative Use

413. The applicant has proposed a reclamation plan which is set forth in Applicant's Exhibits 2, 3, 4 and 92.

414. Reclamation of the quarry floor and walls will be accomplished using overburden stripped from the site and will progress as the phases of the project are developed. Less than ten acres of total area will be un-reclaimed at any given time. The Phase I area will proceed into reclamation once the quarry floor expands to eight acres. (Applicant's Exhibits 2 and 4)

415. As a phase is excavated, overburden which will be stripped from the next phase to be developed will be used for reclamation of the completed phase. The exception to this process will occur when the detention pond will need to be enlarged, thus the floor will be converted into pond as opposed to being reclaimed. (Applicant's Exhibit 4)

416. The quarry floor to be reclaimed will not be solid bedrock. The floor will be blasted two feet below its final depth to allow for root systems to establish. (Testimony of McCain)

417. As work moves from phase to phase, the first task will be to relocate the boulder safety wall that will line the rim of each phase. (Applicant's Exhibit 4 and Testimony of McCain)

418. Reclaimed soil depth will be a minimum of eight inches deep. The reclaimed area will be seeded with a mixture of Creeping Red Fescue planted at twenty pounds per acre, Tall Fescue at twenty pounds per acre, Smooth Bromgrass at twenty pounds per acre and Birds Foot Trefoil at eight pounds per acre. (Applicant's Exhibits 4 and 41)

419. Seeded areas will be mulched at 2.5 tons per acre. All seeding and mulching will occur prior to October 1. (Applicant's Exhibit 4)

420. The sidewalls of the quarry will be left as stepped benches. Soil will be placed on the benches whenever the benches are accessible with machinery. It is expected that trees and other vegetation will establish on the benches and in cracks or crevices near benches over time. (Applicant's Exhibits 2 and 4 and Testimony of Laferriere)

421. During the reclamation process, the applicant will comply with all applicable sections of "The Handbook For Soil Erosion and Sediment Control On Construction Site" and the publication by the Soil Conservation Service entitled "Vegetating Vermont's Sand and Gravel Pits." (Applicant's Exhibit 3)

422. The State Geologist reviewed the project plans and commented that the thirty foot lifts and fifteen foot wide benches are consistent with safety features suggested by the U.S. Mine Safety and Health Administration. (Applicant's Exhibit 29).

423. The State Geologist recommended that the applicant either commit to bringing in as much soil as is needed to complete reclamation or conduct a mass balance to confirm that adequate soil is in place. (Applicant's Exhibit 29). The applicant committed to both. (Applicant's Exhibit 41)

424. According to the applicant's minimum reclamation soil depth, 408.953 cubic feet of soil are required to reclaim 14 acres of quarry floor. The mass balance calculation shows that there are 1,273,041 cubic feet available. Therefore there may be up to twenty-four inches of soil across the reclaimed quarry floor. In addition, decaying stumps and other vegetation will help provide additional organic material. (Applicant's Exhibit 41)

425. At the end of the thirty-three year period of quarrying, the site will have a nearly flat and level area of fourteen acres. The benches on the quarry walls will have been seeded and vegetation will have begun to re-generate. (Testimony of McCain)

426. The applicant cannot predict what the most appropriate use of the quarry will be in thirty three years. Other quarries in Vermont have been reclaimed and now provide significant community resources. (Testimony of McCain)

427. The applicant's goal is to have a useable site at the end of the project. The applicant suggested a number of reclamation options including athletic fields and a rock climbing school. (Applicant's Exhibit and Testimony of McCain)

CONCLUSIONS

Criterion 9(E) of Act 250 reads:

> A permit will be granted for the extraction or processing of mineral and earth resources, including fissionable source material:
>
> > (i) When it is demonstrated by the applicant that, in addition to all other applicable criteria, the extraction of 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) Upon approval by the district commission or the board of 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 alternative use or development.

10 V.S.A. §6086(a)(9)(E). The burden of proof is on the applicant under criterion 9(E). 10 V.S.A. §6088(a).

Impact on Environment and Surrounding Land Uses

The former Environmental Board has stated that 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 land and to seek to prevent such interferences from becoming undue. *Re: John and Marion d/b/a John and Marion Gross Sand and Gravel*, #5W1198-EB, at 16 (April 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.

Two primary issues have been raised by the parties under criterion 9(E)(i). The first is the potential impact of blasting on nearby land uses. The second is the potential impact of the project on nearby equine facilities. The two issues are addressed in turn.

The applicant produced an expert witness on blasting techniques whom the District Commission found to be a credible witness who provided convincing testimony that blasting can be undertaken on the project site in a safe manner and with minimal potential for effects on the parties' residences and water supplies. The applicant has proposed reasonable measures in order to mitigate the effects of blasting as stated in finding 350. The District Commission notes its conclusion above under criterion 8 (noise impacts) disallowing the use of warning whistles and requiring an alternative method of warning. Pre-blast inspections will be performed at structures on the adjoining properties if the land owner's consent is obtained (finding 385). A log will be maintained of seismic data in order to monitor blasting practices (findings 383, 384 and 386). As found in findings 351 and 352, phase 1 site development will require more significant blasting than will the later phases (finding 354). Thus, it will be critical that all blast mitigation measures are in place and fully implemented in a timely manner and any land use

permit will be so conditioned along with weekly reporting requirements to the Commission during the first phase. The District Commission notes, however, that the applicant might not employ the services of the firm that produced the proposed blast plan advanced in these proceedings and that an alternative blast plan may result if another firm is utilized. (finding 349).

The blast plan set out in our findings are material representations integral to affirmative findings. By permit condition, the District Commission shall be notified on an annual basis prior to quarry operation of the blast firm to be employed and of any changes to the blast plan cited in this decision. At a minimum, any changes in blast firm and/or blast plan will be subject to issuance of an administrative amendment by the District Commission. Also by permit condition, the Commission will reserve the right to request copies of the seismic log in order to ensure compliance with all material representations.

The District Commission understands the value of the equestrian facilities to the Mad River valley community and its economy. In this context, the Commission carefully considered the evidence with respect to whether the quarry operation will be unduly harmful to the equestrian operations. The record supports a conclusion that the project will not cause unduly harmful impacts. The applicant will be able to provide the equestrian facilities with timely and appropriate advance notifications of all blast events enabling preparation to be undertaken at the facilities. As observed above, phase 1 quarry development will require the most frequent sequences of blasts. At the same time, the evidence convinces the District Commission that blasting performed in a prudent and competent manner by a professional firm will result in minimal disturbances off the project site. The Commission takes notice of its findings above within respect to the overall noise levels expected from the quarry operations and concludes that they are also specifically material under this criterion. In other words, the 55 dBA maximum sound level is applicable to the equestrian facilities as premises with frequent outdoor use. Exceedances of that standard, and other related material representations, will be subject to the enforcement provisions of Act 250 and/or require the filing of an amendment application for Commission review [Board Rule 2(c)(6)]

Finally, by permit condition the applicant shall provide the District Commission with proof of a suitable general liability insurance policy for the overall quarry operation prior to commencement of quarrying.

Rehabilitation Plan and Approved Alternative Use

The applicant has designed the project such that upon quarry completion there will be a fourteen acre site with at least eight inches of topsoil underlain by two feet of fractured rock. The site will be generally level and may be suited for a number of uses. During the operation of the quarry, less than 10 acres will be disturbed at any time and reclamation of the floor and benches (where reasonably practical) will occur as phases are developed. The Commission will condition any permit to require that reclamation occurs as operations progress. The applicant shall be required to file annual reports by December 31st to inform the District Commission of

progress on extraction, installation and maintenance of stormwater infrastructure and site reclamation. The District Commission retains continuing jurisdiction during the life of the permit to ensure the operation does not result in unduly harmful impacts on surrounding land uses and to verify ongoing reclamation of the site.

The applicant suggested alternative uses for the site. The Vermont Supreme Court in its 2004 Huntley decision (Docket #2003-369) considered the relationship of the permit expiration date for an extraction project and the statutory requirements to approve a site rehabilitation plan. The case dealt with subsequent alternative land uses on the extract tract. The Court indicated that the former Environmental Board (or a District Commission) has the authority to require compliance with the rehabilitation plan by setting the permit expiration date beyond reclamation by permit condition pursuant to Board Rule 32. In this context, and by permit condition, the applicant will be required to file an amendment application prior to the permit expiration date of December 31, 2040 so that the Commission may be assured of site reclamation and a specific approved alternative use or development.

The Commission concludes that the applicant has met its burden under criterion 9(E).

SECTION 6086(a)(9)(F) ENERGY CONSERVATION:

428. One office trailer will be used at the site. A gas-fired furnace will be used to heat the trailer. (Applicant's Exhibit 3)

Therefore, the Commission concludes that the planning and design of this project reflects the principles of energy conservation and incorporates the best available technology for the efficient use or recovery of energy.

SECTION 6086(a) 9(G) PRIVATE UTILITY SERVICES:

429. The project's sedimentation and stormwater control system could be considered private utilities, and must be maintained by the applicant.

Therefore, the Commission concludes that the private utility services are in conformance with the municipality's capital program or plan, or the municipality is protected from having to assume responsibility for the services or facilities.

SECTION 6086(a)(9)(H) COSTS OF SCATTERED DEVELOPMENT:

430. The project site is not physically contiguous to an existing settlement.

431. The District Commission incorporates by reference findings stated above under criteria 6, 7 and 9(A). There are no additional costs of public services for this project. (Testimony of Heaps)

The Commission concludes that the project is not physically contiguous to an existing settlement. The Commission further concludes that the additional costs of public services and facilities caused directly or indirectly by the proposed project do not outweigh the tax renevue and other public benefit or the development or subdivision such as increased employment opportunities or the provision of needed and balanced housing accessible to existing or planned employment centers.

SECTION 6086(a)(9)(J) PUBLIC UTILITY SERVICES:

432. Electrical power will be required for this Project and Green Mountain Power has provided an ability to serve letter. (Applicant's Exhibit 30)

Therefore, the Commission concludes that utility service is available to this project, that an excessive or uneconomic demand will not be placed on such facilities or services, and that the provision of such services has been planned on the basis of a projection of reasonable population increase and economic growth.

SECTION 6086(a)(9)(K) DEVELOPMENT AFFECTING PUBLIC INVESTMENTS:

433. No public facilities or lands are located adjacent to the project tract except for VT Route 100B.

434. Public highways are considered public investments. The District Commission incorporates by reference all findings stated above under criterion 5.

CONCLUSIONS

Criterion 9(K) of Act 250 reads:

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

The Environmental Board has explained the higher threshold for review of impacts on highways under criterion 9(K) as compared with review under criterion 5 [See *Swain Development Corp. and Philip Mans* 3W0445-2-EB (August 10, 1990)]. Criterion 9(K) requires material interference with the function, safety or efficiency of the public investment, whereas criterion 5 only requires that traffic be unreasonable or unsafe. The evidentiary burdens of proof differ substantially, resting on opposing parties under criterion 5 but upon the applicant for criterion

9(K). Finally, permits must be conditioned to alleviate unreasonable impacts under criterion 5. Failure to satisfy criterion 9(K) must, as a matter of law, result in denial of a permit.

With respect to the haul road intersection with Route 100B, the District Commission concludes that the quarry operation will not unnecessarily or unreasonably endanger the public investment in the highway.

The Environmental Board precedents have examined the term "adjacent" as used in criterion 9(K) and have concluded that public investments are adjacent to development proposals when "contiguous" to previously constructed governmental facilities [*In re Munson Earth Moving Corporation* 4C0986-EB: April 4, 1997] and when "lying near or close to...the Board believes that 'adjacent' is a relative term that must be considered in the context of a scale of a project" [*L&S Associates* 2WL0434-8-EB: June 2, 1993)]. In the present matter, there can be no dispute that Vermont Route 100B is "adjacent" to the proposed development in that the highway is the sole means of access for the applicant's trucks to the regional road network.

The District Commission concludes that the facts in the present case do not demonstrate any potential for material interference with the public investment in Route 100B as a result of the project access. Therefore, additional scrutiny of traffic impacts under criterion 9(K) is not required. The Commission further concludes that the facts do not warrant consideration under criterion 9(K) of any public investments within the village of Moretown, given the distance from the project site to the village. The applicant has met its burden under criterion 9(K).

SECTION 6086(a)(9)(L) RURAL GROWTH AREAS:

435. The project site is not located in a rural growth area as defined by 10 V.S.A. §6001(16).

Therefore, the Commission concludes that this project is not located in a rural growth area as defined by the statute.

SECTION 6086(a)(10) CONFORMANCE WITH THE LOCAL AND REGIONAL PLANS:

Town Plan

436. The Town of Moretown duly adopted a town plan on August 27, 2002. (Applicant's Exhibit 77) The town plan was prepared over a 7 year period. Town residents worked with a consultant in preparation of the final document. Public opinion polls were conducted and public meetings were held. (Testimony of Gallagher).

437. The town plan is divided into eight chapters. Each chapter contains descriptive elements and then is followed by statements of "Goals, Policies, Tasks and Strategies." The goals and strategies "were carefully prepared to meet the unique conditions and needs of the Town of Moretown." (at page 1).

438. The town plan expressly states in Chapter 8 "Implementation" that its provisions shall be used in the Act 250 process for the review of proposed projects:

> One of the 10 Criteria that projects must meet to comply with Act 250 is that the development should be in conformance with the town plan. In the case of Moretown, conformance should be determined by whether the proposed development is consistent with specific policies listed at the end of Chapters 2-7. If a project is not consistent with a specific policy, it should be determined to be not in conformance with the plan. (at page 72)

439. In stating the "Purpose of Town Plan," the plan is even more direct:

> The policies set forth in this plan address a wide range of topics, and are designed to serve as the town's unambiguous position during the Act 250 and other review processes (at page 2 under "State Development Regulations")

440. Chapter 7 in the town plan discusses "Land Use" in the town. The town is categorized in four districts. The majority of the town is designated the "Agricultural-Residential District" (Ag-Res District). Within this district, single-family homes are "permitted" and other land uses are "allowed" which include farming, home businesses, schools and light industry. (at page 65)

441. While the Town Plan does not state a definition for "light industry", Moretown zoning bylaw section 7.2 states the following:

> LIGHT INDUSTRY: A use providing for the manufacturing predominately from previously prepared materials of finished products or parts, including processing, fabrication, assembly, treatment, packaging, incidental storage, sales and distribution of such products or components, but excludes basic industrial processing; and meets the specific standards in Section 3.8.

442. Chapter 7 includes a discussion of "Existing Land Use and Trends" in the Town. The plan confirms that:

> Participants at the October 2001 public forum indicated their desire to protect the historic pattern of development with its traditional Vermont village surrounded by countryside. These sentiments have been reflected in previous community surveys and public forums, and are consistent with the goals and policies of prior town plans.

443. The project tract is situated within the Ag-Res district (See map 7-2 attached to town plan)

444. Chapter 7 states with respect to the Ag-Res district:

> The district is intended to provide "for medium density residential development, to permit the continuance of agricultural operations, to encourage clustered housing units, to preserve open space and to preserve the significant resources of the District". The overall goal of the district should remain largely rural and the continuation of farming and preservation of open space is strongly supported. Regulatory options to achieve these goals, including subdivision regulations, should be seriously considered. In addition, it is important that non-agricultural and non-residential uses, such as light industry, do not adversely impact neighboring properties. Non-regulatory means, such as the donation or purchases of development rights, should also be considered. (at page 66).

445. One of the "Planning Considerations" in Chapter 7 reads:

> …two areas of special concern regarding the impact of new development on the town's natural and scenic resources are upland areas and the Route 100B/Mad River Corridor (at page 68). *****

446. Among nine "Land Use Policies" articulated in Chapter 7 are the following:

> 4) Promote the preservation of scenic vistas by maintaining open land
>
> 5) Development within the Route 100B corridor should be compatible with the existing character of that area, as defined by the open, agrarian landscape with scattered residential and agricultural buildings (at page 68)

447. In the concluding portion of Chapter 7 – "Land Use Tasks and Strategies" – the town plan urges:

> 3) The Planning Commission shall explore regulatory and non-regulatory options that support and enhance the working landscape by:
>
> . allowing only compatible rural land uses in the preserve and agriculture-residential districts (ie, farming, forestry, mining, quarrying). (at page 69)

***** In a discussion of "Existing Land Use and Trends" in Chapter 7, the plan observes that "the majority of new units [built between 2000-2002 in the town] are located along the Route 100B corridor and in the vicinity of Moretown Common and South Hill. These areas, outside of the Villages, afford some of Moretown's most spectacular views as well as large lots" (at page 62)

7) The town shall actively participate in Act 250, VTrans and other state level development review processes to ensure that all new proposals meet the policies of the plan (at page 70)

448. Chapter 4 of the town plan catalogs and describes the "Natural and Cultural Resources" of the town.

449. The Chapter opens with a discussion of "Rural Character" which is defined by the following elements:

- A **working landscape**, defined by the productive use of land for farming and forestry. Although local residents are increasingly less dependent upon the land for their livelihood, the town's landscape and historic settlement pattern are among Moretown's most important attributes.

- A healthy **natural environment**, including clean air and water, expanses of open land, healthy wildlife populations, and public commitment to protecting those resources.

- A respect for **tradition** including the preservation of historic buildings and support for local institutions and organizations.

- A **rural lifestyle** marked by relative privacy, peace and solitude, access to the land and nature…. (at page 21) (emphasis in the original)

450. Chapter 4 examines certain "resources" in detail. "Soils and Earth Resources" are included along with a subcategory of "Gravel Resources":

- **Gravel Resources**: No commercial mineral deposits have been located in Moretown, although several concentrations of sand and gravel have been excavated over the years. Because of the importance of sand and gravel to the community for road maintenance and construction, some future extraction of these resources should be anticipated. However, the environmental and social impacts of large scale extraction need to be considered prior to development. Such impacts can be avoided or mitigated through careful site planning, operation and reclamation. Demonstrating, during the permitting process, that adverse impacts on neighbors and the Town will be minimized and adequate provisions for site reclamation made, are an important means of avoiding problems. (at page 23)

451. Chapter 4 does not discuss quarrying or related topics such as rock and stone extraction and processing.

452. "Water Resources" are also included in Chapter 4 and the Mad River received particular attention in that it "provides a central focal point for the town's landscape and… is a recreational resources of statewide significance" according to an Agency of Natural Resources unpublished swim hole study (at page 25).

453. The Mad River has been the subject of one of the most comprehensive and broad-based citizen initiated watershed planning and protection efforts in New England. The town plan details strategic initiatives for water quality. (at pages 25 and 26).

454. The "Cultural Features" subcategory of Chapter 4 encompasses "Open Space/Scenic Resources" and some cited features are "….forested knolls steep mountain sides – and ridgelines which provide the unbroken background for most distant views" and "scenic roads, especially those of a scale and character that discourage high speed travel while offering a pleasant walking and recreational environment" (at page 31)

455. Chapter 4 highlights the Route 100B/Mad River Corridor as an area of "critical importance to the town's rural character and scenic landscape":

- **Route 100B/Mad River Corridor**: The drive along the length of Route 100B is among the most beautiful in Vermont. The meandering river, broad flood plains, rolling hills and deep gorges combine to create a stunning landscape. The Planning Commission studied this route in 1999-2000 and concluded that most of its defining features are located within a broad corridor defined by a distance of 300 feet east and west of the 100 year floodplain.

  As a result of their analysis, the Commission prepared draft zoning provisions which would subject all development within the corridor to review by the Development Review Board to ensure that the development did not harm the historic and scenic character of the landscape. The Commission opted not to submit the zoning provisions to town voters, however, in order to solicit additional comments from affected landowners and town residents regarding the draft standards. (at page 31 emphasis in original).

456. The Route 100B corridor extends ridge to ridge in the river valley (Testimony of Boyle).

457. Also included under the town plan's discussion of "Cultural Features" are "Scenic Roads" "…from which local residents can enjoy the Town's scenic landscape" from automobiles and other forms of transportation. The town's scenic roads are depicted on Map 5-8. The Moretown Common Road is a "scenic road" (at page 32)

458. Among the "Planning Considerations" of Chapter 4 are the following:

- Moretown is fortunate to have retained much of its rural character, which is high prized by local residents and land owners. Careful planning can ensure that future development occurs in a manner that

does not diminish the physical features that contribute to that character.

- The working landscape, defined by both commercial and noncommercial farm land and managed forest, is among the most important landscape elements that contribute to Moretown's rural character.

- A variety of rivers and streams – ranging from the headwater tributaries to the Dog and Mad Rivers to the main stem of the Mad and Winooski Rivers – flow through Moretown. The water quality in these water bodies may be harmed by a variety of land use activities. (at page 32 and 33).

459. Among nine "Natural Resources and Cultural Resource Policies" stated at the close of Chapter 4 are these:

3) New development should be accommodated in a manner that maintains and enhances the town's scenic resources and working landscape

4) Encourage land uses and related activities which support the economic viability of local agricultural and forestry enterprises

7) Provide for the responsible extraction of renewable and finite natural resources for municipal and commercial purposes (at page 34)

460. The Commission incorporates by reference findings stated above under all other criteria.

CONCLUSIONS

Before granting a permit, the District Commission must find that the project "is in conformance with any duly adopted local or regional plan or capital program of Title 24." 10 V.S.A. §6086(a)(10). The burden of proof under criterion 10 is on the applicant. 10 V.S.A. § 6088(a).

Consistent with Environmental Board precedents, there are two inquiries that the District Commission must make in its evaluation of whether a project conforms to a town plan. The Board decisions pose two separate questions: Is the language in the town plan mandatory or does it merely provide guidance? And, are the town plan's provisions specific or ambiguous? *Re: John J. Flynn Estate and Keystone Development Corp.* #4C0790-2-EB, at 27 (May 4, 2004); *Re: Dominic A. Cersosimo and Dominic A. Cersosimo Trustee and Cersosimo Industries, Inc.* 2W0813-3(Revised)-EB, Findings at 9 (April 19, 2001). Criterion 10 is clear that, while it can choose to do so, the Board need not consider or be bound by interpretations of a town plan, even when offered by members of the town select board or planning commission. *Re: Fred and Laura Viens*, 5W1410-EB, at 7 (September 3, 2003).

Mandatory or Guidance

The Board has provided the following analysis:

> Town Plans (24 V.S.A. Chapter 117) are intended to provide the Town citizens with policy direction and goals for land use development based on an intimate understanding of the Town's natural resources. A Town Plan provides a framework upon which the zoning regulations are built. They do not typically contain words or phrases such as "prohibited" or "shall not be allowed". Thus, while they indicate the direction that a Town wants to take in terms of it development; Town Plans often do not set absolute restrictions or prohibitions on development in a Town. *See John A. Russell Corporation and Crushed Rock, Inc.* 1R0489-6, (August 19, 1999).
>
> But despite the recognition that Town Plans are "abstract and advisory", Act 250 requires that projects comply with a "local or Regional Plan," if one exists. 10 V.S.A. §6086(a)(10). The Board is therefore obligated by the language of the law itself to give regulatory effect to a document which, because its purpose is otherwise, is often not written in regulatory language.

Re: EPE Realty Corporation and Fergessen Management Ltd., at page 38 (November 24, 2004)

In a decision involving a proposed rock quarry, the Board grappled with language:

> In the instant case, the Town Plan uses mandatory language in some provisions ("must"), language that is clearly not mandatory in other provisions ("maintain wherever possible") and some language such as "should" where the Board needs to examine the context of the language to determine whether it is mandatory *McLean Enterprises Corporation 2S1147*-1-EB at page 81. (November 24, 2004)

In *McLean* the Board also observed:

> Although the Board has in the past interpreted the word "should" to be mandatory (citations omitted), more recently the Board had recognized that "should" is not mandatory unless there is language in the town plan supporting a mandatory interpretation. (at page 81).

and

> In *Re: Peter S. Tsimortos* 2SW1127-EB at 16 (August 29, 2003), there was no dispute the word "shall" was mandatory, especially because the town plan specifically defined it as mandatory. However, the town plan also contained Land Use Recommendations which used the word "should." The Board held that "regarding the *Recommendations* as only suggestions would be improper in this instance, as the phrase 'shall follow the guidelines' causes the *Recommendations* to be mandatory provisions." *Id.*

and finally

> Thus, a provision in a plan is mandatory if it contains specific mandatory language such as "must" or "shall" or other unambiguous words that convey the mandatory nature of the requirement. In addition, as in *Tsimortos*, a provision that does not use mandatory language itself can still be mandatory if the definition section defines that class of provisions as mandatory in unambiguous language. *Id.*

With regard to the Moretown town plan and the use of the term "should," the District Commission concludes that the governing perspective is provided in the provisions cited above in findings 438 and 439. The Town has directed that "If a project is not consistent with a specific policy, it should be determined to be not in conformance with the plan." This provision must be read in light of the clear statement in the plan setting out the purposes of the overall document – that the policies in the town plan "are designed to serve as the town's *unambiguous position* during the Act 250 [process]…" (emphasis added, not in original) The District Commission understands these as mandatory provisions of the Town Plan.

Specific or Ambiguous

> A town plan provision evinces a specific policy if the provision: (a) pertains to the area or district in which the project is located; (b) is intended to guide or proscribe conduct or land use within the area or district in which the project is located; and (c) is sufficiently clear to guide the conduct of an average person, using common sense and understanding. *Re: John J. Flynn Estate*, supra, at page 28 (citing *See, e.g. Re: The Mirkwood Group and Barry Randall*, 1R0780-EB, (August 19, 1996)

If the provisions are ambiguous, however, the District Commission examines the relevant zoning regulations for provisions which resolve the ambiguity. *Re: Molgano* 163 Vt. 25 (1994) at pages 29-31. This does not mean that a general review of a project is conducted for its compliance with the zoning regulations, but rather it sees if there are provisions in the zoning regulations that address the same subject matter that is at issue under the town plan. *Re: Fair Haven Housing Limited Partnership and McDonald's Corporation*, Docket No. 96-228 (April 23, 1997) (unpublished). In the instant case, the Town of Moretown does have zoning regulations.

With regard to the provisions of the Moretown town plan, the District Commission reaches the conclusions that follow.

Findings 438 and 439 leave no room for equivocation in how the District Commission applies the provisions of the town plan under criterion 10.

The terms of policy 5 in Chapter 7 (See finding 446) constitute the controlling provision for the assessment of this project under criterion 10.

> Development within the Route 100B corridor should be compatible with the existing character of that area, as defined by the open, agrarian landscape with scattered residential and agricultural buildings (at page 68)

This policy concerning the Route 100 corridor is at the completion of Chapter 7. The Chapter includes multiple references to the qualities of the corridor and also notes that the majority of the properties within the corridor are part of the Agricultural-Residential District. The plan specifically states uses "allowed" in this district. One of those "allowed" uses includes "light industry". However, as defined in the town's zoning bylaws, "basic industrial processing" is excluded from land uses encompassed in "light industry". As found in finding 447, the town plan would allow "compatible rural land uses in the…. agriculture-district" and "mining and quarrying" are cited as specific examples. But the clause in the "strategies" portion of Chapter 7 preceding this provision qualifies that these rural land uses are those that will "support and enhance the working landscape". The town plan, while suggesting that mining and quarrying land uses could be compatible in the district encompassing the Route 100B corridor and that allowing light industry will not adversely impact neighboring properties, does not support "basic industrial processing" in the corridor and district. The application before the District Commission is for a land use with a substantial component which will be the processing on site of the quarried stone as opposed to the extraction of sand and gravel (See finding 450). This processing will not be compatible or consistent with the terms of the town plan.

The policies stated in chapter 4 are also controlling. Policy 3 (see finding 459) requires that new development maintain and enhance the town's scenic resources and working landscape. "Working landscape" is defined in the town plan as stated above in finding 449. This definition is anchored in the "productive use of land for farming and forestry".

"Farming" is not defined in the town plan. However, "farming" does have a definition in Act 250. In relevant part, with respect to the record in the case before the District Commission in this matter, "farming" means:

> …the raising, feeding or management of four or more equines owned or boarded by the farmer, including training, showing, and providing instruction and lessons in riding, training, and the management of equines [10 V.S.A. 6001(22)].

The town plan also specifically defines the purposes and goals of the Ag-Res district, the district in which the project is proposed. As stated in finding 442 "…the overall goal of the district should remain largely rural and the continuation of farming and preservation of open space is strongly supported… In addition, it is important that non-agricultural and non-residential uses, such as light industry, do not adversely impact neighbors' properties"

The Town of Moretown adopted a town plan so that development would take place in a manner consistent with the planning tool that evolved from substantial citizen input. The plan also directed (finding 447) active town participation before the District Commission to ensure that all new proposals meet the policies of the plan. The Selectboard and Planning Commission have done so in the present proceedings.

The Environmental Board's Duppstadt/Alden decision [4C1013 (Corrected)-EB (April 30, 1999)] is instructive. In that case, the Board put significant value on repetition in a town plan of provisions specific to an area or district of a town. Repetitive statements in a town plan emphasizing the qualities of an area of a town, the town's planning considerations for that area and policy statements are methods that are sufficiently clear to guide the conduct of an average person, using common sense and understanding, in grasping the meaning of a specific policy. In the matter before this District Commission, the cumulative effect of the content of the Moretown town plan requires a conclusion that this quarry land use, with on-site processing, is not a land use which the residents of Moretown envision for the Route 100B/Mad River corridor and the Agricultural-Residential District. The project will conflict with policies 3 and 4 of Chapter 4 and policy 5 of Chapter 7 of the Moretown town plan.

Based upon the record in this case, the District Commission cannot conclude that the project will conform with the duly adopted Moretown town plan.

Regional Plan

462. The Central Vermont Regional Planning Commission duly adopted a regional plan on September 9, 2003

463. The regional plan classifies the mineral deposits of central Vermont as "important resources". (Applicant's Exhibit 24)

464. While acknowledging that the project's truck traffic would result in "some adverse impact" on Moretown Village, the Planning Commission stated an overall position of conformance with the regional plan. (Parties' Exhibit 33)

The District Commission concludes that the project will conform with the regional plan.

SUMMARY CONCLUSIONS OF LAW

Based upon the foregoing Findings of Fact, it is the conclusion of this District Environmental Commission that the project described in the application referred to above, if completed and maintained in conformance with all of the terms and conditions of that application will cause or result in a detriment to public health, safety or general welfare under criterion 10 (local plan) described in 10 V.S.A., Section 6086(a). The applicant did not meet its evidentiary burden of production under criterion 1 (Air Pollution). Under all other criteria, the applicant demonstrated that the project will not cause or result in a detriment to public health, safety or general welfare.

ORDER

Based upon the foregoing Findings of Fact and Conclusions of Law, Land Use Permit #5W1455 is hereby denied.

Dated at Barre, Vermont, this 19th day of January 2007.

BY /s/ Karl Johnson
Karl Johnson, Acting Chair
District #5 Environmental Commission for purposes of this proceeding

Commissioners participating in this decision:

Ruth Towne
Elizabeth McLain, Chair

Motions to alter this decision may be filed within 15 days of the date of issuance, pursuant to Board Rule 31(A).

Any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of issuance, pursuant to 10 V.S.A. Chapter 220. The appellant must attach to the Notice of Appeal the entry fee of $225.00, payable to the State of Vermont.

The Notice of Appeal must include all information required by Rule 5(b)(3) of the Vermont Rules for Environmental Court Proceedings (VRECP). The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the VRECP.

For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. As of February 14, 2005 the address for the Environmental Court is: Environmental Court, 2418 Airport Rd., Suite 1, Barre, VT 05641-8701. (Tel. # 802-828-1660)

A motion for reconsideration of permit denial may be filed with the district commission within six months of this decision, pursuant to Board Rule 31(B). If a motion for reconsideration is accepted as complete by the district commission within the six month period, then the applicant may file a motion with the Environmental Court seeking to have the case remanded to the district commission, pursuant to the Vermont Rules for Environmental Court Proceedings.