August 31, 2015

To: Halifax Zoning Board of Adjustment

From: Nick Bartenhagen

Re: Condensed Transcript of July 28th Hearing

Upon receipt of this packet, the overburdened ZBA members might understandably groan at having yet another document to review. But I believe that when you start reading, you will find it in fact very helpful in dissecting and analyzing the torrent of data and testimony that came pouring down on your heads in the July 28 hearing.

You will find here a condensed transcription of the hearing, which is based on a complete word-for-word transcription that I created from the official recording of the hearing. If you would like the full transcription, I would be happy to email it to you.

It took this retiree many, many hours to transcribe and then condense the transcript to just the essential facts and opinions expressed on 7/28 – hours that would have been extraordinarily difficult, if not impossible, for Board members to devote, given the time constraints of work and other commitments.

As I listened and transcribed, I was amazed at the volume of technical information that I did not retain on hearing it "live". I believe you will have the same reaction as you read the condensed transcript. As you read through Michael Oman's testimony, you will find it handy to flip through your printout of his PowerPoint presentation. Page numbers are provided in the transcript corresponding to PowerPoint pages.

Some "housekeeping" information:

- This color font is verbatim transcript from the CD of the hearing
- This color font represents questions, comments and respectful suggestions that I think will help you assess the quality and completeness of data and testimony.
- This symbol (__?__) indicates that I was unable to decipher the enclosed word or phrase coming at me in the CD despite three attempts to do so. Often this resulted from shuffling papers, coughing, overlapping conversations and other sounds emanating from that portion of the table nearest the microphone. Sometimes this problem resulted from insufficient projection of speakers' voices sitting or standing near the back of the room.
- I estimate that perhaps 40-50% of the material in the original transcript was deleted to provide this "condensed" version. Almost all of the deleted segments contained material that was repetitious, providing information that had already been aired either previously in this hearing or in prior hearings, or information that in my judgment, would not have served to advance the ability of the Board to discuss, deliberate and render decisions.

40% BY MICROSOFT "WORD COUNT"

- As mentioned in the third paragraph of this Preface, should any Board member wish to review the "raw" transcript to determine for themselves whether to accept my judgment about what to delete or retain to generate this condensed version, I will be happy to email the verbatim text for their review. Furthermore, should any Board member wish to assess the "verbatim" claim I offer, Robbin can burn them a copy of the hearing's CD.
- Should you have any questions, you can call me at 368-2906 or email me at mnpelbar@gmail.com.

I close with this expression of profound gratitude and respect for all that you volunteers have done and have committed yet to do on behalf of the citizens of Halifax.

Nick Bartenhagen

Condensed Transcript of ZBA Conditional Use Hearing
July 28, 2015

S. CHAIT Calls meeting to order. LaFlamme, McNeice, Chait and Lyon present. Pusey absent.

R. FISHER On the agenda, we're covering the Zoning Board questions 1 through 6 and 31, and these will be addressed tonight. So I'm going to...

CHAIT And 32...

FISHER And 32. So I'm going to... uhh... and we'll go in that order, so I will turn this over to attorney Nordle now to go forward with the questions 1 through 6, and then once the applicant has proceeded with those issues, then we'll turn it over to our other interested parties. I understand there's a bit of a presentation here with regard to that, so we'll try to get through all of that as quickly as we can.

C. NORDLE OK. Questions 1 through 6 basically relate to traffic and roads. We did submit responses I think in early-mid-June, submit Exhibits that give a description of road conditions with speed limits and things like that and describes the applicants' view of what the traffic might be. So I will just read through the questions. Jerry's here. After the first question, he'll give a quick overview of what his background is with traffic, truck transport, and quarry operations, and then if the Board has any further questions, he'll be happy to tackle those.

QUESTION 1

NORDLE **In terms of the town's infrastructure, what would be the impact of truck traffic on road infrastructure (roads, culverts and bridges) given the frequency of stone transport over the duration of the project?**

TESTIMONY OF J. PRATT RE: IMPACT OF TRUCK TRAFFIC ON ROAD INFRASTRUCTURE

J. PRATT Hello... Jerry Pratt again. I'm the applicant. I'm speaking about tonight's trucks. And the reason I feel I can speak about trucks is I have a long history of being a truck driver myself. I started when I got drafted. I worked as a trucker for the U.S. Army for two years during the war. Came out from there. Came back to uhhh... came back home to see what was going on in the early '70's. There wasn't anything, and so I went back out and drove trucks out in Florida for a while over to Louisiana and then into Texas for two years. I ran everything from beef to refrigerators, heavy trucks, light trucks, all terrain trucks... any kind of rolling vehicle that you can imagine.

We have been using the route that we are asking to use several times with trucks, and we have designed this project so that the size of the truck that we will be using is the same size as your town truck. So I think that we already have agreed that we would be fair weather haulers. We won't, uhh... There's a mud season here in town for some of you that don't know and we all agree that's no time to run a truck. So the way I understand it is that the Superintendent of Roads will clear the road [the designated route], grade your road and have it ready for the summertime events, and then your roads will be back from whatever your winters give 'em. So, other than that, two runs a day, same truck, up and back twice. Yes... [directed to one of the Board members]

CHAIT Uhm, I'm in an awkward spot, frankly. I respect your experience and I respect your knowledge of trucks and their use. The question on the table [Question 1] is about road infrastructure. Which is an engineering question. It's an engineering question that talks about quite known impacts of trucks on a roadbed or on a culvert or on a bridge.

PRATT That's right. It does.

CHAIT So being able to address your great experience with trucks, which I fully respect, I don't know that it addresses the question for me. What is the quarry's impact, and....

PRATT We're running the same size truck as you are. OK? So our point impact is what the State law says that we can run in. Halifax doesn't have a rule at this point over and beyond what the State rule is.

"OVERLOAD" PAPERS

The state specifically tells you the weight, the length of the truck... if you want to get overload papers, we can do it with some of these vehicles... some you can't... so all those things.

Mr. Pratt has consistently and repeatedly asserted that his haul truck would be structurally equivalent to our town trucks. He has thus far refused to provide more specific than that to the ZBA. To the extent that this analogy is accurate, then if he does receive a Conditional Use Permit, he would then purchase or lease a tandem dump truck to transport extracted schist. The statutory maximum weight limit for tandem trucks imposed by Vermont is 55,000 lbs. A Special Permit increases this limit to 60,000 pounds (30 tons).

If his schist-laden tandems are not weighed as they prepare to leave the quarry, or at some point along the route, how can anyone, including Mr. Pratt, be assured that his haul trucks will not exceed this 30-ton limit? Each additional ton over 30 tons per trip would enhance Mr. Pratt's net profit but further worsen road damage, and consequently, maintenance and repair costs for the town's taxpayers per.

When you say you want us to address the impact . . . we are the same impact as you are. We're the same weight as your town trucks. So we feel that if those trucks are maintaining the roads, then we should be suited for that.

CHAIT So, this is an argument by comparison, not an argument by equation. . . .

PRATT It's an argument truck for truck. We said we would meet you – your standard, the Vermont state standard and that's our intention, and that's the way it is.... that's the way it is.

CHAIT OK. I am not that familiar with the ins and outs of vehicle state and local standards. Do you have (_?_) that I can look at?

PRATT Yes

CHAIT OK

FISHER Attorney Nordle?

QUESTION 2

NORDLE **In terms of potential impacts what is the cost of potential repairs and what impact will this have on the Town's budget and tax rates?**

PRATT No! No, I don't believe there will be any increased road repair costs to the town, with this small (amount of) truck traffic. A lot more truck traffic I don't think would bother the road (meaning the proposed designated truck route). That's my impression

Though Mr. Pratt strongly expresses his *belief* and his *impression* that there would be no increase in road repair costs to the town resulting from just four additional truck transits per day, he fails to provide for the Board any supporting evidence from relevant and technical documents or studies supporting this contention.

QUESTION 3

NORDLE **Given the proposed route of trucks hauling stone there are safety concerns, especially on Stark Mountain Road. How are these addressed?**

SIGNAGE

PRATT What we have suggested is that we put a sign there at the top of Stark Mountain Road that says that **TRUCKS – USE LOWEST GEAR**. That came from your own Superintendent (referring to Brad). We thought that would be something we could do that at would at least post the road for trucks.

See Oman testimony below re: efficacy of road signs.

Other than that, uhm, Stark Mountain Road? I don't know. . . . .how many of you have driven it lately? They've really broadened it out in a lot of places. It's – it's a good little road! There's nothing wrong with Stark Mountain Road.

VTrans Road Design Standards state that all roads having an Average Daily Traffic (ADT) load ranging from 50-100 vehicles per day must have a minimal total width of 18 feet along their entire course. S.M.R.'s ADT load was measured in July 2014 by the Windham Regional Commission at 56 vehicles per day. Measurements of road width by the Applicant's representatives indicated that some sections of SMR were as narrow as 16.5 feet; a subsequent set of width measurements showed sections that were only 13 feet wide, and that the widest portions of this road measured 17 feet. (More details follow in Mr. Oman's presentation)

QUESTION 4

NORDLE **Will the town be required to make improvements to TH52 as a result of the project being permitted?**

TH52, Jerry, is the short section that leads from Jacksonville Stage Road up to the existing logging road.

Mr. Pratt conferred with Mr. Denison as to the history of maintenance of this short segment of road, after which Mr. Pratt conclusively stated that "We will definitely be interested in keeping it (TH52) as pristine as possible."

QUESTION 5

NORDLE **The existing haul road is passable for loaded logging trucks and the construction of the new section of road will be adequate to permit passage of stone-loaded flatbed trucks. These trucks have a higher ground clearance than vehicles used within the town by emergency personnel. Will the road be made passable for emergency vehicles and emergency responders' personal vehicles with ground clearance less than that of trucks?**

ROAD AND TRAFFIC TESTIMONY PROVIDED BY WAYNE COURSER

PRATT OK. We had a meeting (the November 2014 Site Visit) out there. All of you drove your personal cars out. That road has just gotten better since. In respect to that, I've asked the Chief to stand up . . . your Fire Chief . . . and tell you what the process for the fire department is as far as locating where the quarry will be and what they do about whether it's Road 52 or Old Jacksonville Stage or however. And also, he's has many years as a truck driver here in Halifax, and I would hope that he would talk a little bit about that at this meeting.

W. COURSER Well, I don't think there will be any problems with emergency vehicles getting in there. If the log trucks can get over it, we can get over it. And our smallest truck [the rest of this sentence was garbled on the audio]. I wouldn't think there'd be any problem, and even the Halifax Rescue [another unintelligible segment]. I don't think there would be any problem.

Here Mr. Courser expresses his opinion that the road clearances of all the town emergency vehicles that could be called to the proposed quarry site for an emergency are at least equal to that of a logging truck. The unstated presumption is that all logging trucks have identical road clearances. This may be the case. But given the concern expressed by the Board in the second sentence of Question 5, if not validated by actually measuring the road clearances of all the vehicles Mr. Courser cited, the members of the Board would be obliged to base their discussion and determination on his opinion, without factual verification. A tape measure and an objective witness not connected to either party would serve to either verify or refute Mr. Courser's opinion, and the results could then be entered into the hearing's records for possible future reference.

For those on the Board who did not participate in the Quarry Site Visit, it may be appropriate and helpful for them to know that:

1. The original date of the S.V. was postponed by Mr. Denison because the day preceding the assigned date, there had been a steady rain, and in sending out this cancellation message, a staff member in Mr. Nordle's office stated that he (Mr. Denison) was concerned about potential problems for vehicles to negotiate this logging road so soon after a day of rain.
2. The caravan of cars that eventually took to the logging road some days later settled on a speed of about 10 mph because of road conditions – not residual mud or puddles, so much as significant irregularities of the logging road surface. Significant vertical bouncing and lateral rocking required traveling at a virtual crawl to reach the gathering site in the clearing at the end of the logging road.

This raises an additional question that might be viewed as an extension of Question 5: Under the existing condition of the logging road, how long would it take a Halifax rescue vehicle to reach the quarry site, and then return to TH52, where it could accelerate on JSR or other Class 2 roads to a speed consistent with the nature and severity of the employee's medical or surgical problem?

Second, given the need by Mr. Denison to postpone an "elective" auto excursion along this logging road the day after a rain, what if an emergency call was made for an injury occurring as the employees were in process of halting extraction and running for cover at the approach of an electrical storm accompanied by torrential rain? Under such conditions, how long then might it take for an emergency vehicle to reach the quarry and return to JSR?

PRATT How would they get there? How would they know where to go?

COURSER Our dispatcher, on 911 calls... say you call and you're up there, and you had an accident... somebody got hurt up there. You dial 911 and (unintelligible) would transfer that call to our dispatcher by punching a couple of buttons on that computer he's got right in front of him. And he could tell where exactly that you are. And he could tell (garbled word or phrase) where to go.

PRATT So would we have a number out there that we would... when we call 911, we say that would uhhh . . . .

COURSER That road has a number. And... . I don't know I guess there's no name on that particular end by the old Freeman place. I guess. But... most of us know it !

PRATT So, we could apply for a number, and have that dialed in to the dispatcher

COURSER Yup.

PRATT OK Fine.

There is no cell phone service at the proposed quarry site. Will Mr. Pratt contract with the phone company to run poles and a landline connection from the proposed quarry site to the established telephone line along J.S.R.?

COURSER [This concluding testimony by Mr. Courser was intermingled with Mr. Pratt's supportive comments, as transcribed below.]

As far as driving a truck, I worked for the town for forty years, and drove a truck a lot. So, like you said, the trucks that you're going to be using are no heavier... I don't think probably as heavy as our town trucks (PRATT: "I know.") now, and I can remember, about six years ago, Glen Brown and Al Dacey, they cut logs. (PRATT: "Right.") And there was probably three trucks, maybe four, hauling logs down Old Stage Road, and there were no gross weights over sixty thousand pounds. (PRATT: "Right.") And I don't think your load of stones will weigh that much. (PRATT: "No.") And as far as the Stark Mountain Road... I realize it's a little narrow, and we've gone traveling up and down that and meet trucks coming up or trucks coming down, and we'd find a wide spot and (garbled) and we'd call that politeness. (PRATT: "Yyuh.") Now it's all courtesy (PRATT: "That's right.") and we can all use that courtesy. I don't care who it is. (PRATT: "Yyuh.") And I think if your truck was coming down, I don't know your driver, but I think if he sees somebody coming, then he'd try to get over and stop. (PRATT: "Of course he would.") So, that's my statement.

PRATT OK. Thank you very much.

QUESTION 6

In terms of the impacts of this project on the character of the conservation district, is the project in conformance with the purpose of the Conservation District as defined by the purpose of the district as stated in the Zoning Regulations and in the Town Plan? For example, see the Halifax Town Plan [which] states (see pg. 21, "Conservation District Recommendations," item #1), "These lands are appropriate for low-intensity recreation, forestry, wildlife habitat, agriculture, hunting, and other open space uses. Development, which creates significant amount of traffic or noise, or which otherwise has an adverse impact on the environment, is undesirable."

NORDLE Question 6 – I think that's moving more into Town Plan, so probably better tackle (Question) 32

FISHER: You want to do that? OK... it mentioned in the latter part of it the amounts of traffic, so I didn't know if you... if there's anything else with regard to the traffic aspect of that... that you...

QUESTION 32

As stated in the introduction, (the first five paragraphs of the ZBA's May 30 correspondence to the applicant containing 32 questions it wished the applicant to address) **relevant portions of the Zoning Regulations and of the Town Plan are not referenced in the applicant's application package. For example, the Halifax Town Plan (pg.5, #16) states that one of its goals is "To discourage uncoordinated or incompatible development that may jeopardize or over burden public or private investment, or damage the town's resources, rural character and overall quality of life."**

Why have these relevant sections not been addressed in the application package?

NORDLE I guess that with regard to the traffic... the discussion here centers around language regarding a significant amount of traffic or noise. This project is proposed for no more than two loaded trips per day and the operating season is substantially less than a full year, and there won't be any heavy truck trips on weekends and holidays, and that further reduces the impact. So then, up to two trucks Monday through Friday, as Jerry said, when the roads were suitable to handle trucks, and no weekends, no holidays. And...and I think that combination of factors significantly reduces any potential traffic impact and also noise impact.

FISHER Does the Board have any further questions before we turn it over with regard to Questions 1 through 6? And Attorney Nordle, do you have any further witnesses with regard to those questions?

NORDLE No.

FISHER OK. Then I'll turn it over to you, Attorney Grayck, if you have either questions or presentations with regard to questions 1 through 6.

D. GRAYCK I believe Mr. Oman is going to present evidence on the issue of traffic impact, so now is the time to do it.

FISHER OK... so... the floor is yours... if you could just state your name again, so...

QUARRY TRUCK TRAFFIC SAFETY, ROAD DAMAGE & ANTICIPATED TOWN REPAIR COSTS
MICHAEL OMAN – RESUME

Principal and Owner, Oman Analytics, Underhill Center, VT (Transportation and Community Planning).

1996 Adjunct Professor, Johnson State College
1992-1997 Transportation Director, Chittenden County Regional Planning Commission
1991-1996 Principal, GeoData Analytics, Melrose, MA
1979-1984 Metropolitan Area Planning Council, Boston, MA
1978-1979 Project Engineer, Allen & Demurjian, Inc., Civil Engineers, Boston, MA

1975-1978 Metropolitan Area Planning council, Boston, MA
1969-1973 U.S. Army Corps of Engineers, Waltham, MA
EDUCATION
1969 Massachusetts Institute of Technology, S.B. – Political Science
1969 M.I.T. S.B – Civil Engineering
1975 Tufts University, MA – Urban and Environmental Policy
QUALIFICATIONS
Qualified as an expert witness on traffic and transportation matters before:

- The Vermont Environmental Court
- The Vermont Environmental Board

Provided testimony as a qualified expert witness at numerous Vermont district Environmental Commissions and at local zoning and development Review Boards

M. OMAN Certainly... my name is Michael Oman and I'm principal and owner of Oman Analytics. It's a small transportation and community planning firm in Underhill Vermont, and I've been asked to put together materials relative to the questions that you are trying to wrestle with, with respect to traffic and transportation relative to this quarry here. And first of course...I won't dwell on this... you're all familiar with where the quarry is. It is located here on the Denison property, accessed by an access road here onto this short length of highway number 52 onto Jacksonville Stage Road . . then along Amidon Road here and then on to Stark Mountain Road. And so the questions are "How is this whole thing going to get handled?"

[Page 3 of Oman PowerPoint images]
So the impacts associated with traffic associated with the quarry are really kind of three. One is safety issues, the second is roadway deterioration, wear and tear, and that's one of the issues the Board has been interested in, and kind of related to both of these are issues related to maintenance and how are you going to deal with the taxes associated with this.

[Page 4]
So, let's go to safety first, and there are three aspects that I'd like to address. There are a limited number of concrete, objective criteria by which safety can be judged and one of those criteria involve the geometric requirements associated with the

- Stopping Sight Distance
- Intersection Sight Distance, and
- There's also the issue of Roadway Width.

[Page 5]
VTrans actually does specify criteria for local roadways and how that should be handled, so we're going to address all of those that directly impinge on safety. And these are basically the standards that we're going to be drawing on. One is the AASHTO (American Association of State Highway and Transportation Officials) Geomet(ric) Policy of Highways and Streets and this is the current (2011) version of that and also the Vermont State Design Standards – specifically, the Local Roads and Street Standards.

[Page 6]
STOPPING SIGHT DISTANCE (SSD)
So I'd like to start with Stopping Sight Distance. And you have to understand what Stopping Sight Distance is. This is sort of the "last ditch" emergency distance that you have to avoid a collision. Anything less than this stopping sight distance if you encounter some kind of obstruction in the roadway or something along those lines, you're basically if you have less than that amount of space available to you, avoiding a collision, short of running off the road, is not possible. So this is the absolute minimum that you have associated with it. It needs to be available at every place along every roadway. It needs to have a safe operation system. You need to have this bare amount of sight distance available everywhere along the roadway that you intend to use.

L. LYON: I have a question. I think I lost track of what you said. Has the state adopted those AASHTO standards, or...

OMAN: The state does use AASHTO standards, and they further have additional standards as well. But yes, they have adopted, they have basically ...

LYON So ASSHTO is also required in Vermont?

OMAN Yes. It's nationwide.

LYON OK. Is it required, versus recommended?

OMAN Well, it's kind of... they are specific criteria and it's a policy on Geometric Design. So, what that says is that they establish criteria that define safety. As in every engineering criteria, they assume a certain amount of engineering judgment needs to be applied to the way all of these things are used. In some cases you might actually require more. But they are specific criteria to achieve safe operation on the roadway.

LYON Thank you.

[Page 7]

OMAN So I want to talk a little bit about how Stopping Sight Distance is determined. Basically, and not surprisingly, it has two characteristics: you have to be able to see far enough around a corner to know what might be sitting there – an obstacle in the roadway, and it's usually thought that this would be a vehicle stopped on the road, and that's part of the basis upon which this thing is designed. And you also have to be able to see over any crest of hill far enough, and based on that, you have an eye height defined which is three and a half feet, which is on the vehicle which is approaching the possible obstruction. The height of the obstruction is considered to be two feet. And that's actually based on the height of the tail lights associated with the vehicle that might be stopped in the roadway. That is standard. It used to be six inches, a kid chasing a ball into the street or something like that, but they've since liberalized that, so it's now based on an object that you have to be able to see that's at least two feet high in order to be able to stop safely.

[Page 8]

And this is basically the table that's in the AASHTO – the AASHTO requirements, and they divide it up in terms of metric and U.S. measurements, and it's obviously based on how fast you're going. The faster you go, the longer the distance you're going to need to stop. And it's normally set at the speed limit of the roadway on which you are operating. So in that particular case, that's 35 mph here, and that requires 250 feet of visible stopping sight distance according to those criteria in order to be able to stop in time to be able to avoid a collision.

Now there are two factors you might also want to consider. One is the "brake reaction distance" and the "total braking distance" on the roadway. This ["brake reaction distance"] is how long it takes you to react to a perceived hazard. This ["total braking distance"] is how long it takes to actually bring the vehicle to a stop before you collide with the object. Now this is based on the coefficient of friction of the roadway. Now it's normally considered to be wet, but not icy pavement. And I think all of you are familiar with the fact that gravel roads can, unless they are very well maintained, can have a much more sliding surface than you would normally run into on pavement. So you do run into the possibility that this may not be accurate under some circumstances.

In addition to that, it's considered to be a fixed object – an object that's actually stopped in the roadway. But if you're dealing with an object that's approaching you, you may actually need twice as much distance, because that... to see something that's approaching you, you would need to be able to see that, in addition to that. So... keep in mind that the required stopping site distance though at the bare minimum to avoid a collision at 35 mph is considered to be 250 feet.

AASHTO data stipulate that the SSD required for a haul truck traveling at 35 mph to avoid a collision with a stalled vehicle, or a mail delivery vehicle stopped at mailbox, or a neighbor standing and chatting with the driver of a halted vehicle must be 250 feet. The SSD would diminish proportionate to the reduction in the velocity of the haul truck.

In contrast, when another vehicle is closing upon the haul truck at 30-40 mph (as does happen on JSR, and sometimes Amidon) the SSD for both vehicles would lengthen proportionate to the sum of the velocity of both vehicles, and would therefore considerably exceed 250 feet, even if the truck were driving the road at only 25 mph. Does it seem reasonable to assume that during their proposed four daily excursions along their assigned route, quarry trucks would be far more likely to encounter approaching rather than stationary vehicles? And should any collision unfortunately occur, which vehicle and its occupants would more likely suffer most damage?

[Page 9 – Looking east along JSR with the Smith/Leland home to the left, and sharp, near 90 degree blind curve in roadway just past barn on the right]

OMAN And so I want to point out for example that at one of the locations that we're all quite aware of is this location on Jacksonville Stage Road right here by the barn, and we know that there is not an adequate Stopping Sight Distance associated with it. This was measured in an earlier analysis at something like 110-140 feet actually what you can see in this area. And there's also no place to "bail out" here, so you're kinda really stuck with it. So, in addition to that, there was another location on Stark Mountain Road that was measured at 140-170 feet, remembering that the [AASHTO] standard that we're trying to compare to is 250 feet, so we know we have locations that are problematic for safe Stopping Sight Distance.

INTERSECTION SIGHT DISTANCE (ISD)

[Page 10]

I'd like to move on to a second kind of sight distance called Intersection Sight Distance. And it's important to realize these two sight distances are really completely different. One is for a vehicle on the roadway that's actually operating on that roadway to be able to stop safely without hitting someone. Intersection Sight Distance applies to a vehicle trying to pull out onto or across a roadway, not a vehicle on the roadway itself and it determines whether it can safely and effectively pull out into the line of traffic associated with it. So it's an entirely separate kind of consideration.

AASHTO DEFINITIONS AND CRITERIA

[Page 11]

This is a sort of a just a graphic of how Intersection Sight Distance works. It's measured from 14 ½ feet or sometimes 15 feet behind the intersection itself, its measured along the length of the roadway. You have to be able to see to the right and to the left by that distance, typically. So this is the way Intersection Sight Distance is actually measured. It's also measured, by the way, from a height of 3 ½ feet to an object approaching at 3 ½ feet.

[Page 12]

And of course, what's happening is, you know, as we pointed out there are no level or straight sections of roadway, so it's what you can see around and what you can see over that determines what this Sight Distance is.

[Page 13]

AASHTO likes to make things even more complicated. So it defines three separate so-called "cases" associated with Intersection Sight Distances – so Case B1, B2 and B3. Uhm... B1 is a left turn from the minor road, B2 is a right turn from the minor road and B3 is the crossing the route from a minor road. And these all have different kinds of criteria associated with them. Normally the criterion we apply is B1, because you have to be safe going from both directions when you're turning left onto the roadway. But in <u>this</u> particular case, we have a situation where we anticipate turning only right out of TH52 onto Jacksonville Stage, so the actually appropriate case associated with this is B2... it's a little bit more liberal than what its requirements are.

[Page 14]

Again, the way they [AASHTO] define that distance ... it's defined differently as these vehicles that are associated with this are the vehicles that are attempting to get out of the side road. So, it's set

up for a passenger car, for a single unit-truck or a combination truck, and they define them in terms of a gap, the amount of time away that any approaching vehicle is. So, for a passenger car, they say you need 6 ½ seconds to get safely onto the roadway. For a single-unit truck, you need 8 ½ seconds, and for a combination truck, you need 10 ½ seconds.

Translated to 35 mph [speed of vehicle already on the road approaching the intersection], you wind up with for the passenger vehicle at intersections like this require 335 feet. For a single-unit truck, it's 440 feet and for a combination truck it's 540 feet and remembering that the Stopping Sight Distance again is 250 feet. So this is what we're trying to achieve here. Now, we know that – well...we don't actually know this – we're reasonably sure that the intended vehicle associated with the quarry traffic is a single unit truck. All the information that we have suggests that it is. So that means that the sight distance that we're looking for here is 440 feet.

DEFICIENCIES IN STOPPING SIGHT AND INTERSECTION SIGHT DISTANCES

[Page is unnumbered – entitled "RSG Sight Distance"]

There was an analysis provided by the applicant – by RSG – and in that analysis they indicated that both Intersection and Stopping Sight Distance were 305 feet at this location. Now, we know... and they [RSG] also indicated that the required distance was 250 feet. Now we know that those two distances are measured entirely differently, so this has to be either Intersection Sight Distance or Stopping Sight Distance. Based on the fact that the sight line does proceed into the side roadway, as opposed to [remaining] purely on the continuing roadway, I have to infer that they were talking about the Intersection Sight Distance at this location, for which the requirement was not 250 feet, but is, in fact, 440 feet. So but they state that they have a sight distance of 305 feet at this location.

"THEY ARE BASICALLY DEFICIENT IN EACH OF THESE REQUIRED SIGHT DISTANCES AT KNOWN LOCATIONS"

[Page 16]

So, what we wind up with in terms of Sight Distances – remember we said that Sight Distances were one of our main criteria associated with safety – the Intersection Site Distance at Jacksonville Stage and the Class 4 Town Highway 52 was measured by RSG at 305 feet – required is 440 feet. The Stopping Sight Distance on Jacksonville Stage Road was estimated at 110-140 feet – the required distance is 250 [feet]. And on Stark Mountain Road, estimated 140-170 [feet]; and again, the required distance is 250 feet. They are basically deficient in each of these required sight distances at known locations.

VTRANS ROADWAY STRUCTURAL GEOMETRIC CRITERIA AND TRAFFIC CRITERIA STANDARDS

[Page 17]

And, in addition to that, VTrans, as we said, has established criteria associated with the roadway geometry – most specifically, the width of the roadway – and that width is based on the speed of operation on that roadway and the volume categories associated with that roadway. So you guys had done traffic counts on at least two of these roadways by Windham Regional Commission for Jacksonville Stage Road and also for Stark Mountain Road. There was not a separate traffic count done on Amidon Road.

[Page 18]

This is an example of the count that was done [at SMR in July, 2014]. In addition to that, they provided some vehicle classification studies, which we'll look at a little later.

AVERAGE DAILY TRAFFIC (ADT) – JACKSONVILLE STAGE AND STARK MOUNTAIN ROADS

[Pages 19 & 20]

For Jacksonville Stage Road, the Average Daily Traffic (ADT) was found to be 81 vehicles. And on Stark Mountain Road, the Average Daily Traffic was found to be 56 vehicles. And this then leads into Vermont's State Design Standards, in which they define separate categories for each of these

[traffic] volume categories and also for the speed categories. So both of these fall into their "50-100" volume category and 35 mph indicates that each lane wants to be 9 feet with zero feet of additional shoulder associated with it. So that means that the roadway width that is required by Vermont State Design Standards is in fact 18 feet. In fact if it were to be slightly faster or slightly more ADT (Average Daily Traffic) it would then go to 22 feet because you'd get an added requirement for a 2-foot shoulder.

Note that from the chart data, driving at only 25 mph on either roadway would still require a minimum total width of 18 feet (9 feet for each lane)

[Page 21] – Looking west on JSR at the road's near-90-degree zigzag Leland-Smith barn on left.

GEOMETRIC / STRUCTURAL DEFICIENCIES IN ROADWAYS PROPOSED FOR SCHIST HAUL TRUCKS

What we end up with is a situation in here where in fact I know – because I measured it here – that this is 16 feet wide, and it's almost a "perfect storm" of safety problems because not only is it only 16 feet wide and has 110 feet of Stopping Sight Distance, in addition to that there is no lane marker, so anything could be at any point in the roadway here. It's not like you have well-defined lanes, and trucks of this size are typically 8 feet wide, so it occupies fully half of it, and in addition to that, unless it were fully over to one side, there's not even another lane available for approaching traffic. So these are some of the widths that I had an opportunity to measure.

[Page 22]

The applicant indicated in his analysis that the Jacksonville Stage Road was between 18 ½ to 25 feet wide. Stark Mountain Road was 16 ½ to 19 feet wide. I measured at specifically narrowed portions to find out what they were and found Jacksonville Stage Road to have portions 16 and 17 feet wide, and Stark Mountain Road to be as little as 13 feet wide at some locations.

So we obviously have some significant constraints associated with the widths, which are supposed to be 18 feet [by Vermont's State Design Standards]. And these were the locations that we actually looked at: the intersection of TH52 and Jacksonville Stage had a deficient Intersection Sight Distance, and Stopping Sight Distances on Jacksonville Stage Road and on Stark Mountain Road. So these are some things that feed into road safety issues associated with them.

SIGNAGE

[Pages 24 & 25]

One thing I want to talk about: Sign issues almost always come up in these kinds of questions. Signs have been studied very little. Signs are almost an article of faith. There was a synthesis done that actually looked at it [effectiveness of signage]. Let's see, it concluded that "Traffic sign effectiveness appears to be more a matter of perception and opinion than a fact-based evidence. This is from the [review] study associated with this, so the degree to which signs actually improved the traffic safety issue is... they're often used, but there is little evidence as to how effective they are. I would add to that, in particular regarding this aspect of signs, and that is that signs lose their effectiveness with familiarity. People who are already familiar with an area actually can't even be warned about what's coming along. It can't warn people that, you know, there's a hazard ahead. I'm talking here about people who have driven through this area hundreds of times, and nothing's happened. They're not even reading the signs, so in some criteria established by some communities they make specific reference to this as a problem, to watch out for that if you're putting signs in.

ROADWAY DETERIORATION

THE IMPORTANT CONCEPT OF EQUIVALENT SINGLE AXLE LOADING (ESAL)

[Page 26]

So another question that's been coming up is roadway deterioration or "wear-and-tear". Now there are methods by which this can be evaluated, and the most common one or an important one is a

method called "Equivalent Single Axle Loading". The equivalent single axle that we're talking about is one 18,000 lb. axle, and those are set up to be equivalences so you could find other vehicles running on the roadways. And roadways are designed or not designed to have a total amount of these loadings that they anticipate they will be able to put up with before they have to be rebuilt or reconstructed or replaced. So the number of Equivalent Single Axle Loadings is a key variable in roadway structural integrity.

I'll talk a little bit about how this is done. When you're doing equivalent single axle loads, one might be a 12,000 lb. single axle, but when you get a tandem axle or a multiple group of axles, they have to be treated as a group – not like two single axles here – it's one double axle group, so the evaluation has to be done on that basis. It's a 34,000 lb. tandem axle group, not two 17,000 lb. single axles.

ASSIGNING SINGLE AXLE LOAD EQUIVALENTS

[Page 27]

This is a table from standard Highway Engineering text which tells you how to assign the actual loading equivalents associated with any vehicle that's going to be running on the roadway. This one has basically two sections: a single axle versus tandem axle configuration. These are the weights of either the single axle itself or the tandem axle group. These are what are referred to as "structural numbers". That's the structural condition of the roadway that takes that formally into account. One of the things I want to say is that I actually had to use an equation form of that, but that equation gets very confusing, so I didn't include that equation in there.

APPLYING ESAL CALCULATION TO APPLICANT'S PROPOSED HAUL TRUCK

[Pages 28 & 29] + [Page 30, columns 1, 2 &3]

One of the things that we're actually looking at is a tri-axle arrangement. Now when the applicant originally sent around a brochure [in November 2012 to some abutters] explaining what was going to happen, there was a picture of a truck that looked a great deal like this on his brochure. This is a single unit truck, a flatbed truck with a tri-axle configuration. And so what I did was, using the weights that were also proposed by the applicant, which were a 15-ton vehicle weight associated with a 20-ton stone weight, yielding a [35 ton] 70,000 lb. total weight. And I ran through the ESAL calculations for that vehicle. And I actually did use, instead of the 70,000 lb. total weight, I did use a 69,000 lb. total weight because state weight limit that we'll talk about a little bit later. I estimated that the Equivalent Single Axle Loading for a tri-axle truck, fully loaded was 4.44, and for a tandem truck returning [no stone] 0.40 for a total of 4.84 [ESAL units per day of road impact for two round-trip excursions by haul trucks].

TRANSLATING TRUCK ESAL FINDINGS INTO EQUIVALENT NUMBER OF AUTOS DRIVING THE HAUL ROUTE

[Page 30]

One of the things that can be done with all of this is to calculate the equivalent number of cars that would it would take to produce this level of ESAL loading along the route. In this particular case (if using a tri-axle haul vehicle), it would require 11,108 cars per day to load the roads to that level.

[Unnumbered page showing image of Halifax town truck, and Page 32]

And the other option was... the applicant says "Well, this is the truck"...This is ***like*** the truck" or something that we ***might*** be using, but this truck is really quite different (from the type Mr. Denison included in his 2012 brochure).

It's also a single unit truck, but the important part of it is that it's a <u>tandem</u> axle truck – it only has two of these rear axles, not three. So when you start calculating this... I assume that it would be flatbed, since that would be ideal for hauling blocks of stone . . . .ohhh . . . . maybe . . . . I don't know . . . . but when you run that through ESAL calculations, and load a tandem axle that way, what you wind up with is 36,000 cars per day to produce the equivalent [road] loading of that same truck, fully loaded, 69,000 lbs. total weight.

[Page 33]
Now the reason I said I changed that weight to 69,000 and so on is because Vermont does have statutory weight limits, established in 23.VSA.1392, and the straightforward weight limit for a tandem axle truck is 55,000 lbs – Total Gross Vehicle Weight. For a triaxle truck it is 60,000 lbs. total TGVW. However, it is easy to get Special Permits that would allow a tandem to run up to 60,000 and a triaxle run to 69,000 lbs. So these are the requirements that we're going to have to deal with at some point.

Within his application, and in oral testimony, Mr. Pratt provides the following information:

1. "The operator plans to make final equipment selections after permits are obtained" [Exhibit 18: Page 3 of pdf rendition, Section 2, Paragraph 2]
2. In testimony he delivered at the January Act 250 Commission Hearing, when asked by Attorney Grayck to confirm the number of round-trip quarry trips he intends to undertake, Mr. Pratt prefaced his response with the temporally qualifying words "Right now" before answering that he would limit his haul trucks to "two trips a day".
3. In striking contrast to the highly detailed information on all other aspects of the project contained in his application and then in response to questions from the Act 250 Commission, the ZBA and participants at hearings before both boards, Mr. Pratt repeatedly refuses to identify even in very general terms the characteristics of the haul truck he must already surely have in mind, vaguely likening it to one of our town's dump trucks.

One should wonder why this veteran quarryman and nearly life-long trucker is unwilling though surely able to unequivocally divulge this information despite multiple requests. Should the ZBA require an unequivocal statement, on the specific type of truck he actually intends to use – tandem vs triaxle and flatbed vs. dump truck – not just a vague and evasive analogy to "town trucks"? This information, especially regarding a tandem vs. triaxle truck, would help guide the Board's deliberations and determinations about the degree of road damage inflicted by his choice of truck.

CULVERTS: CRITICAL BURIAL DEPTH

[Page 34]
I want to talk a bit about culverts. Culverts, I think most of you know, are an absolutely critical part of roadway structure and roadway maintenance. One of the key characteristics of culverts is that they have to have adequate burying. They have to have adequate cover depth, because what happens is with this is called flexible pavement, in other words, the load is actually carried by spreading that load into the subbase of the material. So whatever's underneath it, the load is getting spread onto it. So the stresses are spreading out as they go lower and as they do, there are lower unit stressors associated with it. The recommended minimum level culvert depth is 12 inches, but that's usually considered to be under some sort of actual pavement, so 12-15 inches [below an unpaved road] would seem to be a more realistic depth. And this is really, really important when you're driving heavy loads. Cars can pretty much drive over culverts all day and not a whole lot is going to happen, but [in contrast with a 4,000 lb. auto], a 70,000 lb. truck [hauling schist] cannot. This is going to be associated with all sorts of crushing problems with culverts if they're not adequately buried, so you really need to address culvert issues.

FINANCIAL IMPACT OF ROAD AND CULVERT DAMAGE FROM SCHIST HAULING TRUCKS

[Page 35]
I made an attempt to say, well what might all this cost? This is admittedly very preliminary, very first cut. This is based purely on the Single Axle Loading calculations. I used the triaxle truck associated with it, and I estimated that the ESAL loading data based on the vehicle classification that Windham Regional included in their traffic counts. So based on that, I estimated the ESAL loadings on Jacksonville Stage Road at 471 and Stark Mountain at 522. Amidon I didn't have, so I averaged at 496 between the other two. I could be a little bit more or less, either way. It won't matter a lot, because that's a relatively short link.

So then the quarry equivalent single axle loading I estimated at 673 annual loading. This is not a daily loading now – we're talking about an annual loading, and I can show you the assumptions that I made associated with that. We have a document that you guys introduced – that the town introduced – that estimated the existing costs for maintenance on each of these roadways... $42,600 (JSR) . . .$18,500 (SMR)... and $6,007(AR) for each of these roadways (for a total of $67,100). Then, just based on the number of increases in Equivalent Single Axle Loading (from the quarry trucks), I made a straightforward linear extrapolation that comes up with additional costs associated with it. Now these costs are additional annual costs, that's the additional cost added onto the old costs.

So for each roadway, I added them up and this comes down to an additional $93,968 in terms of additional costs based on straightforward linear extrapolation. Ultimately, you're going to want to have a more careful analysis than that because some of these factors are linear and others are not linear, some of these are fixed and some are marginal. Nonetheless, just as a first cut, this would give you some idea of where we are.

If the ZBA accepts the applicant's elusive statement that his haul truck will be the structural equivalent of a town truck, then he thereby acknowledges his intent to use a tandem-axle vehicle. Mr. Oman's presentation estimated the increased cost of road repairs at $93,968 per year on the basis of a triaxle truck. Triaxle ESAL is 4.84, equivalent to the impact of roughly 11,100 two-ton automobiles. However the ESAL of a tandem truck bearing the same load is 15.68, inflicting "car equivalents" road damage of roughly 36,100 cars per day. Thus, a tandem axle vehicle's impact on roads and culverts is greater than a triaxle vehicle's by a factor of about 3.25. This difference will play out in the heightened degree of road damage per trip, and a proportionate increase in the cost of maintaining and repair of the roads and culverts these tandem trucks will traverse each day.

FURTHER ANTICIPATED ROADWAY COSTS TO THE TOWN IMPOSED BY THE PROPOSED QUARRY

[Page 36]

And the other thing is, costs that are not included in this (estimate). Any geometric repairs anywhere that the roadway width needs to be adjusted in order to satisfy (state mandated) safety requirements were not included in that cost. Likewise, Intersection Sight improvements, the culvert standards to replace existing damaged culverts. That need has (already) been identified before. Ensuring and providing adequate culvert cover depth – not included. All those (additional costs) will need to be included in addition to the town's annual road maintenance costs to make that [the quarry] work.

1. As mentioned above, the Select Board and Brad conducted a survey of culvert status along the proposed truck route some time ago, the results of which could either be accepted as current status, or updated.
2. If the ZBA thought it would be useful for their discussions and deliberations, perhaps the Chair could ask the SB to enlist an unbiased reputable and certified road engineer to provide a reasonable estimate (+/- 10%) to bring all defective or insufficiently buried culverts along the truck route up to standard. Given the ESAL of a tandem axle truck loaded with schist, the frequency of daily impact, and the proposed 50-year operational term of the proposed quarry, selecting a 15-inch burial depth as "standard" would seem to be fiscally prudent, to reduce need for subsequent repairs over the proposed life of the proposed quarry.
3. Given Mr. Oman's response below to a question from Mr. Chait, a certified engineer could advise whether it would be wise to install culverts with thicker walls as suggested by Mr. Oman to reduce frequency of repeated removal and replacement of damaged culverts over the long run.
4. In addition, to lessen the danger to residents and other drivers on town roads traversed by quarry trucks, such an engineer could estimate the cost to bring into compliance sections of all truck route roadways that do not now comply with state-mandated geometric or Sight Distance (SSD & ISD) standards.

5. One might anticipate that to systematically and thoroughly bring these non-compliant sections of roadway into compliance will involve attorney fees resulting from resistance by some residents owning property along the truck route.
6. As stipulated in the Halifax Zoning Regulations, the applicant, and not the town of Halifax, would reimburse the expenses of the road engineer consultation.
7. If the project is granted a C.U.P., such corrective efforts would be costly, but would reduce the Town's and the Applicants' risk of lawsuits should injury or death result from uncorrected state-mandated defects. Who would pay for bringing these deficiencies into compliance with state stipulations?

OVERVIEW: ROADS AND TRAFFIC – SAFETY, ROAD DAMAGE AND REPAIR COSTS

[Page 37]

So... where are we? Basically, we have a situation where we have a significant degree of safety problems. The insufficient stopping sight distance at identified locations, insufficient intersection sight distances and inadequate roadway width to allow vehicles to get past one another and furthermore, there would be a high impact on the roadways due to the very heavy loading associated with a significant increase in road maintenance cost. So that's kind of where things stand.

WHAT ARE WE REALLY TALKING ABOUT REGARDING CUBIC YARDS OF SCHIST THE APPICANT INTENDS TO REMOVE FROM THE QUARRY?

[Unnumbered 38th page]

And now there's one additional issue, and I wasn't exactly sure where to put it, so I put it here at the end. And that is, as part of this analysis, the Citizens Group asked MSK Engineering to estimate the total volume of material that is going to be removed based on the difference between the existing ground surface and the reclamation plan that was proposed by the applicant. So basically, what it [MSK Engineering] did was to take these little slices of [existing] ground surface and [compare it to] the reclamation plan, which tells us how much volume that [difference] represents. So the question is: What are we really talking about in terms of removal of material?

[Page 39] Upper Row of Data

And so here's what kind of winds up happening: Based on the application that we're all looking at now, two loads per day, and the assumption of 166 operating days a year, and a 50-year life, and 2.3 tons per cubic yard (for mica schist), we wind up with 144,348 cubic yards proposed to be removed.

Checking the math:

- "Two loads per day" was stipulated in both the application and reinforced several times by Mr. Pratt in subsequent testimony.
- The operating season is proposed to commence not earlier than April 1st and to conclude not later than November 30" [Exhibit B Schedule B Page 2 Paragraph e]. Accounting for four holidays, this does calculate to 166 operational days per quarry year.
- At the January Act 250 hearing, Mr. Pratt testified that no more than 20 tons of schist would be carried by each exiting haul truck. At 2.3 tons per cubic yard, this would calculate to roughly 8.7 cubic yards of dimensional schist per each 20-ton load.
- If he remains true to his claims in his application and in his sworn testimony at the Act 25 hearing, then

8.7 cu.yd. per load x 2 loads per day x 166 quarry days per year x 50 years = 144,420 cubic yards

[Page 39] Middle Row of Data

Now there's a Schedule A associated with this application, and it states how much material is supposed to be removed over the life of the project. This was also produced by the applicant. That says 246,000 cubic yards were to be removed, and from that I just made an estimate, based again

on these assumptions [cited above] that would result in 3.4 loads per day in order to carry that [volume of schist] out.

- In Schedule A Mr. Pratt clearly and unequivocally informs the State that he intends to extract 246,000 cubic yards of dimensional schist to transport to his processing and finishing facility in Shelburne Falls. Based on this quantification, the state assessed an extraction fee. [Exhibit A: Schedule A – Fee Information – Item 2]
- If Mr. Pratt honors the limits imposed on the number of loaded trips per day and the quantity of schist conveyed on each truckload, and the number of active quarry days per annum, it will be physically impossible for him to extract the 246,000 cubic yards that he declared to the state that he intends to extract from the proposed quarry hillside.

  Working backward, what options might he have to accomplish this? Let's do the backwards math:

  246,000 cu.yds ÷ 50 yrs ÷ 166 days per year ÷ 2 trips per day → 14.8 cu.yds./day x 2.3 tons/cu.yd. =
  34 tons of schist per trip. Since he has claimed that he would select a truck ("after receiving a permit") like that of our town truck – a tandem two-axle dump truck, weighing 27,500 lbs. (13.75 tons) empty [per registration form submitted by applicant], this would far exceed the limits of Vermont's Special Permit of 60,000 lbs. for a tandem truck [per Mr.Oman's PP slide] , since he would be generating a vehicle with a combined weight of 95,000 lbs. (nearly 48 tons).

  However, if, sometime, sooner or later, "after receiving a permit", the number of truckloads leaving the quarry each day were incrementally doubled, thereby halving the quantity of schist transported per truck to 17 tons (34,000 lbs.), this quantity of schist, combined with an empty truck weight 13.75 tons (27,500 lbs.) would yield a TGVW of 30.75 tons (61,500 lbs.) per loaded truck, barely outside the range of the limits permitted with an easily obtained Special Permit. But who would know, since we couldn't weigh his loaded trucks as they leave the quarry or while running down our roads.

  Another option, not exclusive and possibly inclusive of the above stratagem, would be ("after receiving a permit") to forsake all prior allusions to the town dump truck and choose instead a flatbed truck dimensionally longer than the town truck, with a triaxle configuration including an auxiliary "lift or drop" axle – just such a truck as seen on Mr. Denison's brochure and on Mr. Oman's PP slide. Leaving the quarry with all three axles down would increase the permitted weight limit under a Special Permit option to 69,000 lbs. If so, Mr. Pratt could increase the trips out of the quarry to only 3, not to four. With revised reverse math, we can estimate that each of these three flatbed triaxle trucks could convey a bit more than 73,000 lbs of schist (36.5 tons) which would be a mere 4 tons (less than 2 cubic yards) of schist over the State's triaxle Special Permit weight. Again, who would know, and who could or would tell?

  But our roads would know, and our taxes would tell.

[Page 39] Lower Row of Data

And based on the calculated actual volume [estimated from] between the difference between the two – between the existing terrain and the volume [of remaining material estimated by MSK Engineering] evident in the reclamation plan, it winds up as 482,000 cubic yards, which would require 6.7 average trips per day. At the moment, all the analysis has been based on just two loads per day. Obviously, anything else would change somehow. So, I don't what the answer is.

Nor does anyone else. This is indeed a mystery.

QUESTIONS & COMMENTS FROM THE BOARD

FISHER Does the Board have any questions for Mr. Oman?

CHAIT The slide you showed on the culverts – was that slide based on a paved road?

OMAN That illustration specifically involved a pavement on top. That's a paved road... yes. Generally, traffic is lighter and that sort of thing. Let's put it this way – if you had solid 12 inches of cover over your culverts, that would be OK. Fifteen might be ideal, but that 12 inch burial depth would probably be alright.

CHAIT And does the material that the culvert itself is made of have any impact – plastic versus steel?

OMAN Some, but not so much. It's really the distribution of the forces down to it. Once you get into the culvert design, it's not just what the material is, but the gauge of the material itself, you know, gets factored into it, but you know, the standard rule of thumb is that if you get it under 12 inches of cover you've got a pretty good functioning piece.

FISHER Any other questions for Mr. Oman from the Board? Attorney Nordle, any questions?

NORDLE: I don't have any direct questions for Mr. Oman, though I do have a couple of observations... and I have a couple of questions that I'd like to ask Jerry, if we could just . . .

FISHER If we could just wait on that... are there any questions from the audience with regard to Mr. Oman's presentation?

QUESTIONS & COMMENTS FROM THE AUDIENCE

M. BICKLE On your chart the wear on the road, I know that a tandem truck when they come out of the quarries onto blacktop, wherever they come out of them and make their turn, you can see where the highway has eroded, and I think that's because of the tandem wheels. When the tandem wheels are running, the back wheels do not follow the front wheels, it slides, and there's increased wear in the turns on all kinds of roads.

OMAN Yes, there is off-tracking... there is a little bit, compared to the overall load. What we tend to see more . .

J. ROSSETTI It separates... it separates the blacktop!

OMAN Yes, the blacktop is more subject to that in that way. You'll see it at traffic stoplights. When the truck comes to a stop, it will actually shove the material.

J. KOTANCHIK So at this point, they are planning on two loads a day. So they're going to take a truck up, take a load down, truck up, take a load down. That's the two loads, right?

OMAN That's what the application says, yes.

KOTANCHIK So then, but Schedule A says it will be 246 [thousand cubic yards] – which means <u>almost double</u> the load.

OMAN Right.

KOTANCHIK So, are we giving them permission then to do the 3 1/2 [trips *on average* per day]? An additional 1 ½ loads up and back?

OMAN Right now, I don't know. . . . . What I'm saying is that there is a discrepancy here that needs to be resolved in some fashion or another. There are three different volume representations here and three different sources that have three different implications for what will have to happen with the (truck) traffic associated with each. So there is a disconnect somewhere, but I don't know where.

Might there be a triangular linkage between:

- Mr. Pratt's dogged resistance to reveal at the very least a legitimate approximation of the model, size and axle number of the quarry's haul truck(s) in advance of receiving his anticipated permit
- Mr. Pratt's "Right now . . ." prefatory comment at January's 250 Hearing regarding number of truck trips (see below), and
- the 2- to 3-fold discrepancy between what Mr. Pratt could mathematically extract under the limits he states in his application, and in oral testimony, and the quantity of schist extraction he formally declared he would extract in Schedule A and in the reclamation plan.

As noted above, to attain the second (explicitly stated) volume of 246,000 cubic yards would mandate either more frequent truck trips and/or greater loads per trip. Either would substantially increase road damage and the cost to taxpayers to maintain and repair these three roads. In the former case, with twice or 1.5 times the number of trucks travelling our narrowed roads having multiple local deficiencies in SSD and ISD it would also substantially increase the risk level of auto damage, bodily injury or even death on our roads.

FISHER Yes sir... in the back.

N. BARTENHAGEN I don't have a particular question for Mr. Oman, but I do have some information I'd like to share regarding traffic and trucks.

FISHER OK

BARTENHAGEN I have four pages of information regarding testimony that was given by Mr. Pratt at the January [Act 250] Hearing. I'd like to provide that testimony to the Board in written form so they can review that at their leisure. What I'd like to do, if granted permission to do that . . . . it would take me about 5 minutes . . . is to read a few points along the way that I would particularly like the ZBA to focus on as they read this material. Again, this is testimony under oath from Mr. Pratt at the first Act 250 hearing in January. Would that be appropriate?

FISHER Does the board want to accept that and/or listen to the excerpts?

S. LAFLAMME Five minutes... fine.

FISHER OK. Go right ahead Mr. Bartenhagen

NORDLE Can I just ask what the source of this is?

BARTENHAGEN A transcript... verbatim.

NORDLE And who prepared the transcript?

BARTENHAGEN I did.

NORDLE Was it taped?

BARTENHAGEN I prepared it from a CD...a CD requested from the [Act 250] Commission.

BARTENHAGEN [After distributing packets to ZBA, Nordle and Fisher] The 4th page is actually a photograph of the truck that was shown – a similar truck to that shown by Mr. Oman. I'm going to review this only because I believe you deserve to hear this information so I'm going to read this . . I think it will take less than five minutes. I'm offering the ZBA information pertinent to the issue of trucks... a 3-page transcript of an audio recording of the morning session of the first Act 250 hearing in January. The verbatim testimony given by Mr. Pratt under oath that is pertinent to the issue of trucks and schist transport appears within sections in all 3 pages. In other words not every page refers (exclusively) to trucks. I've selected out those that pertain to trucks. I'd like to call the Board's attention to each of these 3 sections in turn.

On page 1, at 30 minutes into the hearing, a member of the audience asked Mr. Pratt if he would define either the size or weight of the proposed schist blocks that would be trucked out of the proposed quarry and transported over the proposed route along Halifax roads. Mr. Pratt responded that "the block won't be over 20 tons". One can infer from this that a single 20-ton block would be hauled on each existing trip.

One minute later – still on page 1 – one of the 250 commissioners sought clarification, asking how much would be able to go onto each truck... the tonnage. Mr. Pratt replied "Whatever the truck road limit is. So I don't know at this moment what that is." Well, we just learned [from Mr. Oman] what that limit is. The Chair of the commission then commented, " But you're able to calculate that you would only had to do two trips a day," to which he (my final word unclear, but possibly 'agreed').

I would insert three questions that the ZBA might consider here: [1] What is the Halifax truck road limit? I think we now know that... [2] How much of a financial penalty would be assessed by the town for trucks exceeding that limit? [3] How would the town know whether or not any given truck exceeded this limit?

Page 2: Two hours after the session began, Attorney Grayck asked a question regarding dimensional schist extraction limits. Mr. Pratt responded that – and this I believe is important "Right now" – he

said – "Right now, our application is asking for 2 trucks a day." Right now... "And [he continued] the maximum that one of these trucks could carry I believe would be 20 tons – not more than 40." In light of "reverse math" section above, his "not more than 40" (tons) may also be significant.

Here I would inform the Board and the audience, that Exhibit 18, Page 3, of the pdf rendition of the 250 application – so for those who are taking notes – this is Exhibit 18, Page 3 of the pdf rendition of the 250 application – in Paragraph 2, Section 2 appears the following: "*The operator plans to make final equipment selections after the permit is given. The operator plans to make final equipment selections after the permit is given*". Quarry equipment selections and perhaps truck selections **after** the permit is granted.

Page 3: Twenty minutes later, the commission allowed comments and questions from the floor. Aware of the above sentence regarding final equipment selection after the permit was given, I returned to the comment Mr. Pratt made, which is to say "Right now" in asking two trucks per day and questioned that two-word prefatory qualifier and its implications regarding a possible change... increase... in the number of truck trips, getting back to that slide that was shown just a little while ago about which of these three – "Will the real quarry please stand up? And what the implications are for the number of truck trips it would have to take to satisfy each of these potential quarries...We don't know which one [is the real quarry]. So I asked him "Right now" – what is the meaning of those two words? You know... what made you say that? Why did you bother to say that? How did that come to be? I didn't actually ask him those questions, but I was thinking those questions.

I was about to pursue this avenue of questioning but I was cut off, as can be seen in the transcript, by two of the commissioners. And since Mr. Pratt was testifying under oath, I don't know whether those two words were intentionally spoken or not. So, that's something that I think might be helpful for the Board to review and consider. There are some inconsistencies in here that have to do with basic guidelines and some inconsistencies dealing with the presentation of the data which might be looked into at some point

FISHER Any other questions from the audience? Yes... in the back... Mr. Silverberg?

P. SILVERBERG So, I want to challenge the notion that because the weight and axle count on a transport trucks is the same as the town truck – that it's OK. It doesn't make sense to me. Every time the town truck goes out – right? – taxpayers spend money to run the truck, buy the truck, pay the guys to do a good job. But every time this truck goes out, the roads get better. That's the whole idea, right? Should be. That's what we expect. That's what they do. They do a great job. Right? That truck runs every day, but all that... that [town truck] traffic is spread out all over all the Halifax roads.

These trucks [schist hauling trucks] – right – the roads do not get better every time they go out, right? The roads get worse every time they go out, and it gets run on a specific section of the roads. And as Michael has pointed out, the damage on these roads is going to be astronomically high. So to say it's OK because it looks like a town truck just doesn't make sense to me.

FISHER Yes [acknowledging another audience member]

J. FERLAND Arthur Ferland. I live on Jacksonville Stage Road. And I have more information here on trucks, pertaining to prior meetings. On January 23rd, Mr. Pratt stated under oath that he intends to quote "lease" unquote a truck to haul stone from the proposed quarry to his processing plant in Shelburne Falls Massachusetts. On March 6th, six weeks later [at the second Act 250 Hearing], Mr. Pratt stated again under oath that he intends to quote "buy a truck to haul stones" end quote. He has refused to give any specifics about the vehicle he would "lease" or "buy". Instead, he presents us with a photograph of a Halifax town truck. We all recognize that the town trucks are heavy and do a certain amount of damage when they go down a road. But we also know that those trucks are there to improve the road, that all of us using the road are going to benefit by the work done by that truck and our dedicated town highway crew.

By contrast, every time a quarry truck travels down the road, it will be doing damage and costing us taxpayers money. The traffic counts done last year showed that very few heavy trucks ever travel the roads the quarry trucks would use. At two loads a day, the truck goes by 20 times a week – a very big increase over the present burden on these roads. To dismiss this cost to the taxpayers of Halifax by inferring that "it's OK because the trucks are like the town truck" is a fallacy that Halifax will pay for at least for the next 50 years.

Jerry Pratt has years of experience trucking stone. So, no doubt he knows that the load on a town truck loaded with snow plow and wing plow weighing down the front of the vehicle has a very different weight distribution than a flatbed truck carrying huge blocks of stone over its rear axles, even though both vehicles are within legal limits. So it is perplexing that he continues to represent them as interchangeable. Damage to the roads is not just a matter of the total weight of the vehicle. The weight on each axle is what determines the forces applied to the roadway and culverts.

Furthermore, when an inflexible vehicle [as opposed to a tractor trailer] is turning, lateral forces are applied to the rear wheels, since they can't turn as the front wheels do, like Mr. Bickle mentioned. The greater the weight on the rear wheels, the more shearing force they apply to the road. This is why heavy trucks are capable of tearing up an asphalt surface. Flatbed trucks loaded with stone, even if they have the same total weight as a town truck, will exert different – and more harmful – forces on our roads, because they will have more weight in the rear than in the front.

I would like to know why Mr. Pratt is unwilling to commit to a specific model of a truck or even to say that it will be one of several specific models that would suit his needs. In applying for a conditional use permit, the burden is on the applicant to demonstrate with precision the nature of what he is asking for, and being vague about the truck fails to meet this simple standard.

Mr. Pratt's evasive answers to the question of what type of vehicle he will employ to transport the heavy schist stone from the proposed quarry to his processing plant and finishing plant in Shelburne Falls, Massachusetts----are in sharp contrast to statements he made at the last Act 250 hearing. While discussing road safety and possible road damage associated with heavy commercial vehicles traversing the back country dirt roads of Halifax, he unexpectedly informed everyone no matter what type of vehicle he intended to use, so long as the state of Vermont granted him a registration, he had the right to drive the vehicle on any and all Vermont roads.

Thus the question remains – what vehicle does Mr. Pratt intend to use? And this Board should demand an unequivocal and truthful answer before considering granting any permit. Thank you.

FISHER Any further questions? Yes. . .

R. STONE I travel Stark Mountain Road quite regularly, and count on meeting passenger cars on that road, and the way I look at it, unless you're planning on reducing it to just one passenger vehicle one way on that road, there's no way you're ever going to completely mitigate what has happened – meeting another vehicle coming from the other direction. And we always have to pull over - I do anyway - and I'm looking at the SSD [Stopping Sight Distance[and the ISD [Intersection Sight Distance] numbers that are presented earlier [by Mr. Oman] that's almost on every secondary road in the state of Vermont or all over the country for that matter. There's no way that you're going to meet that criteria anywhere unless you're on the highway – North or South on 91 is the best I can figure. And it's hard on the applicant, whether it be someone coming to propose a quarry, uhm, if you're not to, to not allow, not allow an applicant that files for an excess weight permit if they need to or whatever permit is required through the town. It depends on what vehicle they select. They can't do anything more than what is allowed by the town.

People need to understand that. Whether he chooses to purchase or lease I think depends on someone's financial situation. I don't know about you, but I know that can change in six months. Also, when it comes to whether you allow trucks whether they're town that you're going to

start eliminating heavy trucks on Vermont back roads, then you'd better be looking at UPS, who nearly runs me off the road nearly every single day when I drive to work, FedEx trucks, logging trucks, oil delivery trucks - after all, we all need to have our heating supplies from somewhere, your utility companies, well drilling, your fire trucks – they have to be able to get there. You see Wilmington maintain their section of roads. And I just wish the Zoning Board would take everyone's situation under consideration when they make their decision, because I think it's important that everyone has a voice. And I'm glad that so many people turned out to be involved, because it's a nice process and you know it's to the credit of the Zoning Board that they've done more than what they needed to. I've never been to so many hearings. I thank you again for your inspiration the people

FISHER Attorney Nordle, did you want to...

OMAN May I speak... just briefly . . .

FISHER Oh sure... go ahead.

OMAN I certainly know that there are problems on the back roads and that sort of thing in Vermont, but generally, the issue is that you're significantly increasing a danger that already exists when you start running into problems.

FISHER Yes...

S. KELLY Just to follow up on what Michael Oman just said – there actually is case law stating that if there's a road that or a situation that is dangerous, that doesn't create permission to create a situation that is further more dangerous. So that's not an excuse to say it's already a dangerous road. That doesn't give them a pass to make it more a more dangerous situation now.

FISHER In the back . . ..

E. LAONA I just want to make a comment here. When we were talking about the logging trucks, the fire trucks, the school busses . . . they're all necessities of life up here. A quarry of schist is not. Thank you.

FISHER Yes... in the back, sir...

M. MARANIAN I just want to clarify that the Halifax Select Board did state in an Act 250 Hearing that we do not have the money in the town budget to make these necessary upgrades and improvements, and in order to do so they would have to increase the town budget to do that.

NORDLE Turning back to the handout from Mr. Bartenhagen gave us a little bit earlier – I just wanted to state one quote from the Commission Chair. That I think is also quite relevant to this Board's review process here. The Act 250 District Commission Chair following discussion about, you know, how many trucks is it, you know, what are we really looking at in terms of the project – the Chair said – it's on page 3 of Mr. Bartenhagen's handout - We will be making a decision based on the applicant's request for two truckloads a day of material out of that site. The applicant's asking for two trucks a day. That's all that's proposed. That's all the board should consider.

- The Act 250 commissioners accepted unquestioningly Mr. Pratt's assertion regarding truck trips limited to just two per day, even in the face of a 2-fold (246K vs 144K cubic yards) or more than 3-fold (482K vs.144K cubic yards) difference in the volume of schist he intends to extract as stated in his application and testimony.
- The 250 commissioners' uncritical belief in Mr. Pratt's claim that he only intends to haul two loads per day should not prevent the ZBA from looking critically at all the evidence and considering whether this claim is consistent with the remainder of the application.
- If limited to 2 truck trips per day and 20 tons per truck as per his sworn testimony in January's 250 hearing, Mr. Pratt could maximally extract only 144,000 cubic yards of schist. So why does the 246K cu.yds. of extracted schist appear in his application? Or the 482K cubic yards indicated by examination of the reclamation plan? And how could he possibly attain that volume if strictly adhering to those 2 trips per day and 20 ton per trip limits? Mathematically, there's no other way except by abandoning one or both of these prescribed limits – truck trips and/or tonnage per truck.

NORDLE The second follow-up comment... I guess at the end of the day, what the Board really needs to assess here is whether the road system in Halifax is in fact so fragile that it can't accommodate an additional two loaded trucks per day for half of the year – 166 days as shown in Mr. Oman's calculations.

The roads are not "so fragile" when the daily ESAL impact reflects almost entirely cars and light trucks, though they do require constant repair by the road crew. But according to traffic expert Oman, they will require considerably more maintenance with the proposed additional load at considerably greater expense to Halifax taxpayers. Who stands to gain and who to lose from this arrangement?

NORDLE As Ms. Stone pointed out, we're talking about existing conditions on the roadway. These trucks are supposed to pass over the existing public highway system. This is what the town highways are for. They're for members of the public to get from Point A to Point B. That's all the applicant is asking to do here.

NORDLE In response to a question about why not commit to a specific make, model and year of truck – a couple of reasons. One is cost. It would be highly unusual for an applicant to come in and purchase all of the equipment that they need to operate a project before they can even get the approval to operate the project. You know, these trucks are tens and tens of thousands of dollars to purchase. It just simply isn't reasonable to anticipate commitments made up front. What happens if you get the permit and then all of a sudden that make or model isn't available?

Mr. Nordle misunderstands the concerns of the opposition and counsel who do not, as he states, ask that Mr. Pratt *purchase* a truck before receiving permission to proceed with his project – that would indeed be fiscally foolhardy. But we do think it reasonable to expect him to declare, "for the record" such general modalities as truck type (dump truck or flatbed), number of axles and general structure (tandem or not; anticipated bracket of Total Gross Vehicle Weight (TGVW).

NORDLE And the other consideration here in terms of equipment selection is that this is a project that would continue over the course of 50 years, so I actually think it would be totally irresponsible in 2015 for the applicant to say "Here's the truck that we're going to use over the life of the project." What's the condition of that truck going to be in terms of 10 years, 20 years, 50? So I mean, those are some of the considerations that go into not being able to say "Here's the exact truck that we're going to use."

This argument has the makings of a straw man. Who would deny the need to upgrade trucks and other operative equipment, so long as the equipment to be brought on line at the proposed quarry did not exceed the structural equivalent of those they replaced. These stipulations would apply for instance to prevent replacement quarrying equipment that would significantly increase noise levels. For newer model trucks – no upgrades should be employed that would involve structural parameters that would inflict greater road damage, or increase risk of vehicular mishaps.

NORDLE There was a question about, you know, is there another route. This is the *anticipated* route. What we're talking about tonight is the *anticipated* route for trucks going in to and coming out of the project.

This is not a commitment regarding the route. Would the ZBA be inclined to require a commitment?

NORDLE I do have a couple of quick follow-up questions that I'd like Jerry to address if that's OK with the Board? Jerry, Mr. Oman's testimony was based on 35 mph travel speed, and I get it that they are AASHTO guidelines, and I also understand that there are the realities of Vermont rural dirt roads. What I'd like you to comment on if you can is how fast do you think the trucks are likely to move over these roads? And how fast either you travel in a personal vehicle over these same roads or how fast you're observing people traveling relative to your speed?

PRATT The trucks themselves either going up or coming down will not exceed 25 miles an hour. Going down the hill, they'll be in low gear. They're not even – 5 to 7 miles an hour maybe – I think something like that – low gear. [To W. Courser]:Do you think you can get 7 miles an hour in low gear?

COURSER No more than that.

PRATT So, the speeds would be very low. What was the other part of that?

NORDLE How fast do you travel over these roads, or how fast do you observe others traveling?

PRATT Well nowadays I travel pretty slow. I'd say that I travel these roads between 25... mostly between 20 to 25 miles an hour personally. I don't want to get excited. That's my speed.

Mr. Pratt may be the exception to the rule. On most stretches of the main (Class 2 & 3) town roads, most of the autos and small trucks run along at between 30-35 mph. See Oman response below regarding oncoming truck speed.

NORDLE All right... and... did you have any follow-up responses to the testimony you heard tonight?

PRATT Uhm... we were kinda hanging on two words that I said [referring to "Right now"]. At this point or something... uhm . . when I was talking about the trucks and I just wanted to...the state of Vermont has criteria that tells you what your formula for your truck... how much weight the state allows. And the state of Vermont is unique in that they set up for the secondary roads the truck load limits. So... in the state of Vermont you can drive a heavier truck on a dirt road than you can on a tarred road. And I don't know why they pick the formula the way they do, but it is the way it is. Our intention is to protect our permit at any cost. If it means that we have to use slower speeds or something like that, I have a lot invested here and I feel there would be no way that we would want our truck to hurt anything in your Halifax roads.

FISHER So attorney Nordle, let's now, if we don't have any more comments on Questions 1 through 6, let's cover questions 31 and 32, all right?

NORDLE [Question] 31 asks...

FISHER Oh wait...hold on one second... attorney Grayck... do you have . . .

GRAYCK Yes... I thought Mr. Oman should be able to respond to some of the points that were just made.

FISHER All right... we're going to allow you to do that and then we'll get on to 31 and 32. Just given that it's 9 o'clock, and we're going to finish tonight.

OMAN A couple of quick points. The basic law that governs the weight of the trucks is 23 VSA 1392. Anyway you're welcome to take a look at it and see what the actual limits associated with what the trucks are. I pulled it straight out of there. The other thing I did want to point out is this business about speed. The stopping sight distance is predicated in fact on a stationary object. That truck could be actually stationary in the roadway, and you would still need the same stopping sight distance. So the fact that it's going slowly is irrelevant in that calculation. What that means is the Stopping Sight Distance probably has to be twice as long as when the truck and car are actually approaching, at that distance, but the truck could be absolutely stationary and you would still need the Stopping Sight Distance to assure safe operation of that car on that road.

FISHER Mr. Brown?

D. BROWN Can I ask a question? Can I ask it of Mr. Nordle?

FISHER You can ask it, but I'm not sure if his not obligated to necessarily answer, but let's see what the question is.

BROWN The question is... you referred to "the *anticipated* route", and I'm just wondering if that's an implication that on any given day... say Stark Mountain Road didn't seem very good, would you go down Jacksonville Stage Road instead?

NORDLE The applicant has identified Stark Mountain Road as the *anticipated* primary trip on the town highway system, that's where he *thinks* he's going to go. It's a substantially longer distance to go down Jacksonville Stage Road and come back to the processing facility in Massachusetts. And Jerry can jump in whenever he wants to but that's the portion of the town highway system that the applicant presented he *believes* they're going to use.

". . anticipated. . ." "...thinks. . ." "...believes . . ."
Again, would the ZBA be inclined to require a firm commitment regarding the route?

QUESTION 31

FISHER All right, let's go to Question 31.

NORDLE **In the Natural Resource Assessment (Exhibit 8) there is discussion of how the project will avoid direct impacts on bear, deer and moose habitat. What will be the impacts of the project on the habitat for the range of fauna and flora in the Conservation District?**
This response was prepared by V.H.B., and it's essentially a – you know in some respects – it's a summary of the fairly lengthy Natural Resources assessment that was submitted as Exhibit 8 as part of the application. And I'll give just very even briefer summary of the response. The applicant has worked with avoidance of all identified resources where feasible protection and mitigation resources, and played a significant role in the design of the project. No rare, threatened or endangered species are known from the ANR's (__?__)and none would be potentially impacted by the project. The applicant has proposed a habitat management area around the project that is shown on Exhibit 14. He agrees with response as to fisheries that neither the Green nor the North River fisheries areas would be impacted by the project. The applicant has agreed to actively promote habitat as the project is going through the reclamation stages, and Jerry can possibly give us a brief explanation as to how quickly he's observed regeneration at areas at the site impacted by other activities over the years.

FISHER Attorney Nordle, do you want to touch on Question 32 as well? The Town Plan issue?

NORDLE Question 32: **As stated in the introduction, relevant portions of the Zoning Regulations and of the Town Plan are not referenced in the applicant's application package. For example, the Halifax Town Plan (pg. 5, #16) states that one of its goals is "To discourage uncoordinated or incompatible development that may jeopardize or overburden public or private investment, or damage the town's resources, rural character, and overall quality of life." Why have these relevant sections not been addressed in the application package?**

LYONS [Raising her hand] I . . .I didn't know we were moving away from wildlife?

FISHER Well, I thought we would let him address both (31 and 32), and then we can turn it over and address both 31 and 32 from any of the other participants here.

LYONS Yeah, but I have a group of questions

FISHER Well, let's hear the answers and then we'll uh... we'll move on.

NORDLE We did submit a responsive analysis to this question. I think the in part the response is that we believe that (__?__) the individual exhibits that were submitted as part of the application do address this. The project is small in size, no more than two loaded truck a day. It's within a 60 or so – I don't have the exact number in my mind – acre leased area of the quarry. The impacts are not super extensive from a geographic perspective. The visibility and audibility – Eddie Duncan was here a while ago, and you know, he talked about his opinion and Jerry's opinion that those impacts are relatively narrow in terms of scope on the project. So I just think in general each exhibit speaks in its own respect to that specific criterion.

FISHER Attorney Grayck, any response with regard to Questions number 31 and 32?

GRAYCK I'll see if the Board has any questions first.

FISHER All right... Board, do you have any questions?

LYONS I would like to go back to the wildlife assessment. How much of that assessment was based on on-the-ground surveys and how much was desktop analysis of best-available published database information?

NORDLE I don't know if all of the individual site visits are described in the application...

LYON Yeah... I only see two dates of site visits, but [remainder of Lyons' comment obscured by loud table noise at the microphone site]

NORDLE There . . there were more than that, and if you want a chronology of the site visits, I'd be happy to have VHB provide that. But they did some... the VHB staff did some initial site visits on their own. They also met at various times with folks from Fish & Wildlife, and also people from the

Wetlands Group, and also people from the different storm water sections that needed to review the project, so there was a fair amount of on-the-ground investigation. It was all preceded by looking through the available stuff in the ANR's database, but then they went out and actually field-tested the stuff. There were, you know, some back-and-forth discussions with ANR. And those discussions, in part, led us to that recover mitigation plan in Exhibit 14, so both VHB and ANR had been out to the site, and I can give you a better chronology of all the site visits if that's helpful.

LYON Yeah, the Windham Regional Commission's been working with us on updating our zoning bylaws, and we had two visitors from the Forestry Division, and one of them specifically said that he was unaware of any biological surveys that had been done in Halifax specific to the quarry area.

NORDLE Uh-hun... there was a Fish & Wildlife staff member that testified at the Act 250 hearings based on his personal site visits his observations were very much consistent with VHB's observations. And he said that "when I was out there I observed a lot of wildlife". But his overall conclusion was that these were not, you know, unique and irreplaceable communities – no rare or threatened species out there, and that the project could be operated in a way that wouldn't jeopardize the existing wildlife, I'm talking plants and animals. That was my recollection of his testimony.

LYONS Yeah . . .and I heard that testimony, but the recollection I have was that his evaluation was really on a sort of a gross level, not meaning gross like disgusting, but gross on a large scale, like gross anatomy, versus really doing a biological survey to actually ask about what plants and what animals were using the area and at what time. So I would appreciate more detailed information on when your colleagues visited and what methods they used, and how they did their assessments, and what they found. That would help to better understand what conclusions would be involved. And I don't want to at all criticize him and would start with his ad hoc analysis of what data are available and where the holes and gaps we need to fill in to better understand an area.

FISHER Any other questions from the Board? Yes... go ahead.

CHAIT In your Exhibit... I'm talking about the Town Plan... in your Exhibit 22, you refer to on... I assume on page 3... you assume the Town Plan provides...that section... you then get to Goal 10. That Goal 10 is for the State Plan – it's not... It's quoted in the Halifax Town Plan, but it's not actually part of the Town Plan. And you don't actually refer to it to have this discussion in light of the criteria that are provided in the Goals of the Town Plan, the definition of Conservation District or the Conservation District Recommendations. And I think it would be helpful if your discussion actually referred to the Town Plan rather than the State Plan. And it would be helpful to have that along with the environmental piece. Thank you.

FISHER Oh... . OK...A Board member has a follow-up question, and then we're going to deal with the petition of 10 or more neighbors. Just to put that on the record. And then we're going to get to submittal dates. So... Brian... go right ahead.

B. McNEICE This is for the applicant . . .let me give you a little background... I'm trained as a geologist (__?__) in Albany, New York for quite a few years. I have to say that out of my house... we removed a lot of bedrock for my house. I took samples of it. It contains about 10% pyrite. And that's based on my own analysis. When you expose it to ground water and to surface water, there's a breakdown of the pyrite and you get a lot of iron in the water, and you get sulfur in the water, which ends up acidifying the water. So I didn't see anything in the applicant's plans for dealing with the slightly acidic-to-fairly acidic water which is going to result from the quarry. How do you plan to deal with the acid, iron-rich water?

PRATT I... uh... I haven't been asked that question. I don't know in our process... uh... none of our people have even thought about that, to be honest with you. I... I... I don't know how you came to the 10%. I suppose there would be... it would differ, depending on where it was in the bed, and so on and so forth, so, uhh... that's a... that's a question a geologist would ask. (Audience laughter)

McNEICE I only know that because I've done some excavations on our property. We have about 400 acres in the Northfield pretty much all in the Northfield. I've done some shallow excavations in the bedrock for tile drainage and I've ended up with a lot of iron leaching out of the bedrock, and I was

sort of puzzled by that, and I did a little research on it, and it turned out that it was mainly due to the high pyrite content.

PRATT What was your water content where you were making your observation? Was it a garnet material or was it (__?__) material?

McNEICE No this was a tile drain in a field, so I had to scrape an area of bedrock in order to get going on it. So I scraped an area of bedrock about three feet, and ever since then, the tile drain has run red. And that's... you know... based on my experience as a geologist working out on the (__?__) for a number of years, it's not surprising. When you expose a big area of bedrock, with a lot of pyrite, and it weathers, you're going to get high iron content and acidified ground water. So, I need to know if your plan is to treat that with limestone treatment or something, or what?

PRATT I don't see that our engineers have.....so the application would be . . must be in the sedimentation area? Or you'd put your...some kind of limestone or something to absorb it.

McNEICE Yeah . . I didn't see anything in the drawings for that. So I didn't... I didn't know why you didn't address that.

PRATT No, we haven't identified that as any kind of problem.

McNEICE It's something that needs to be addressed.

PRATT OK . . .

From this point, the remainder of the audio centers around discussions between the three attorneys and members of the ZBA regarding procedural matters and other "housekeeping" matters. No further testimony given or questions asked about the quarry application itself or related questions.