ADAMS, SARGENT AND HINTON
ATTORNEYS AT LAW
1301 EXECUTIVE DRIVE
P. O. BOX 19471
RALEIGH, NORTH CAROLINA 27609
(919) 876-8140

THOMAS F. ADAMS, JR.
WILLIAM C. SARGENT III
CHARLES L. HINTON III

February 4, 1980

Mr. J. K. Sherron, Director
State Property Office
North Carolina Department of
Administration
116 West Jones Street
Raleigh, North Carolina 27611

Dear Mr. Sherron:

The purpose of this letter is to outline the proposal of my client concerning the use and disposition of property located at the northwest corner of the intersection of I-40 and Harrison Avenue.

The total area of the tract of land at this location is approximately 225 acres. On behalf of my client, I hold options on approximately 195 acres. The 195 acre tract has a common boundary with Umstead Park on the east side of approximately 3,000 feet, and on the north side (along the Crabtree Creek) of about 2,800 feet. It lies on the north side of Interstate Hwy. No. 40, having a frontage of about 4,000 feet.

The intended use of the property is the development of the northern area as a rock quarry and the southern portion for other commercial uses. The commencement point of development will be about 2,200 feet north of I-40. Up to this date, no core drilling has been done in order to accurately assess the quantity and quality of the stone. However, based on rock outcrops, my client believes that the rock deposit is extensive and that it is reasonable to expect that quarrying will be feasible.

Let me point out that I have no personal interest in this property. My client is experienced in quarry operations. The method of operation of two existing quarries in which he participates demonstrates his interest and concern for others in the immediate community. Ample proof of this was demonstrated recently when it was sought to have additional land in Wake County rezoned to accommodate the future expansion of this quarry. Not even one neighbor objected to the requested rezoning and there was not even a request from a neighbor for a buffer area. It is also noteworthy that one adjacent property owner

who resides within 500 yards of the present quarry pit was a member of the Wake County Planning and Zoning Board and as a member of that Board voted in favor of the rezoning request.

The common objections to rock quarries are noise and vibrations which result from blasting and dust from the crushing operation. While the public is not yet aware of it, these problems have been almost totally eliminated during the last few years.

Perhaps you would be interested in a brief outline of the enormous improvements made in recent years to overcome virtually every objection to the manner in which rock quarries were operated.

For many years, blasting was done by firing one charge which created air and ground vibrations which could be heard and felt several miles away. Some of the annoying features of such blasts were the loud and sudden noise, the rattling of doors and windows, the cracking of wall plaster of surrounding buildings and the frequent disturbance of water veins which supplied nearby wells. During the last few years, improved technology in the handling of explosives (the use of which is now required by the present mining laws) has reduced the noise to very acceptable levels, completely eliminated objectionable vibrations and, of course, eliminated all problems relating to the flow of well water. This improved technology consists of firing the same amount of explosives as before, but the difference is that various portions of the explosives are fired in series, milliseconds apart, producing only a fraction of the noise which was produced only a few years ago. It produces no objectionable air and ground vibrations on adjacent properties. The duration of the blast is less than 1/2 second and with rare exceptions, occurs no more often than three times per week.

Before leaving the subject of blasting, I would want to point out that the normal blast is a muted "boom". However, these are occasions when the blasts produce a "crack" as opposed to a "boom". The technology of handling explosives has not advanced to the point where this problem can be totally eliminated. Nevertheless, in those few instances where the "cracks" occur, there is still no problem as to either ground or air vibration.

The problem of dust formerly common to quarry operations has been totally overcome by the simple procedure of spraying moving stone with water.

Every aspect of quarry operations, including noise, dust, vibration, water and safety, is controlled by State mining laws and regulations and regulations published by the U. S. Department of Labor and the U. S. Bureau of Mines.

We would like to have you, officials of the State Parks, and any other State officials visit one of the quarries in which my client participates and receive first-hand information on how a quarry operates. We would prefer that you visit at a time and date when blasting will occur.

What would be the effect of a quarry operation on wildlife in Umstead Park? I do not claim extensive knowledge concerning wildlife; however, there are established facts which would appear to provide an answer to this question. It is well known that deer are among the more timid animals and that wild turkeys are among the more timid birds. Many deer and quail have their habitats on the property of the Wake Stone Quarry at Knightdale and there are wild turkeys which live around the quarry at Moncure. I have recent pictures of one walking along the edge of the quarry pit looking for a gobbler. The "gobbler" was a drill which made a sound similar to a turkey gobbler.

What would be the effect of a quarry operation on the Crabtree Creek? Initially, the plant site would be cleared just as would be necessary for the establishment of any business. Then overburden would be removed from the quarry site of 4 to 5 acres and either used or hauled away. During these activities, sedimentation procedures would be necessary just as in the case of any other development. After the quarry is in operation, the water run-off would be only rain water. Water from the quarry pit would be pumped into a small lake and then used to wet aggregates to prevent dust.

Since the industrial (northern) portion of the property will remain undeveloped except for the quarry operation and since the quarry operation would use only a small portion of the property at any one time, the water run-off would hardly exceed that which occurs on undeveloped land and the great majority of the land would be left in its natural state.

What about heavy truck traffic? Quarries do require trucks to move their stone to market. This site is ideal from that standpoint. Instead of being located on secondary roads, trucks from this quarry would move immediately on to the interstate highway and not burden secondary roads. It is also of interest that the number of daily trips which would be generated per day by a quarry is approximately 200 trips. This compares with 5,000 trips per day if the property were developed for normal industrial uses.

What about the view of the quarry from I-40? As previously stated, the quarry site is over 2,000 feet from the highway.

In addition, all of the subject property slopes downward from the highway as you proceed northward across the property and if the site were otherwise in view (which it would not be), it would be obscured by the deep cut through which the highway passes.

Up to this point, we have felt it necessary to explain how quarries, when legally and properly operated, can be good neighbors, rather than the noisy nuisances which earned for them a very bad reputation over many years. We wanted you to be aware also that the isolation of the subject property, plus its location with respect to the I-40 interchange, makes this the most ideal place immaginable to locate a rock quarry.

We would now like to point out why this rock deposit on this site should be developed and the value of a quarry on this site to the community and the State. The reasons are as follows:

1. Stone is a valuable and natural resource. It is absolutely essential to the construction of roads, bridges, dams, parking lots, driveways, retaining walls, homes and other buildings. Wherever there is concrete or asphalt, stone is required. We believe that it should be the policy of the State to assure the availability and use of this resource to the extent necessary to meet the long range needs of our citizens.

2. Stone is not as available in all areas as might be supposed. Actually, stone is quite plentiful in the Cary area, but except for the subject property all of the known deposits are near residential subdivisions. We do not believe that the public will willingly permit heavy industrial development near these residential areas.

An important fact is that the Triassic basin which extends from a few hundred feet west of our property westwardly to Chapel Hill, and includes all of Durham (and reaches from Granville County to Sanford), does not have a single deposit of stone which has commercial value.

The only quarries which can reasonably serve the entire area between the City of Raleigh and Durham and Chapel Hill are the Crabtree quarry on Duraleigh Road, a quarry located northwest of Durham and a quarry west of Chapel Hill. The Crabtree quarry is a non-conforming use and has a very limited life. Further, it cannot supply the demand of its market area, which includes Cary and the Research Triangle Park. The Durham quarry cannot supply its demand. The quarries east of Raleigh now supply a part of the stone needs west of Raleigh.

3. The development of a stone quarry on the subject property would result in substantial savings to consumers in two ways: First, it would reduce the cost of hauling and second, it would provide price competition where none exists at present. By any reasonable estimate, the reduction in hauling costs alone would reduce the cost of paving the new sections of I-40 and the cost of the new runway and other improvements at the Raleigh-Durham Airport by several million dollars. The cost of stone for development of the Research Triangle Park, the surrounding industrial plants and other development in the Cary trading area should be reduced by at least a half million dollars per year based on present-day values.

4. The conservation of energy is now a pressing consideration. A high percentage of the hauling cost is the fuel consumption. The cost of hauling stone is from 10 to 12 cents per ton per mile. Using the lower of these figures, the cost of hauling a load of stone on a 20-ton truck is $2.00 per mile. If the average haul is 10 miles, the hauling cost is $20.00 per load. In order to conserve energy as well as to reduce the cost of stone, quarries need to be as near as possible to developing areas. This quarry, when developed, will be the only quarry which could be said to be "near" the Research Triangle Park and the Cary area.

We would now like to discuss things that we can do which will be of value to Umstead Park. We share the common concern of all of our citizens for the well-being of Umstead Park and we believe it is an important asset of our community and our State.

As a present consideration we propose to establish a 50 foot buffer area along our entire eastern boundary (with one exception) which will be left in its natural and undisturbed state except for the removal of dead, dangerous or leaning trees. The exception is that we would like to continue to use as a yard the yard space around the house now occupied by Mr. and Mrs. Cecil Johnson (and shown on the enclosed map as Tract No. 32) so long as this building remains on the property.

We propose to establish a buffer along the south side of Crabtree Creek for the entire distance of our common boundary with Umstead Park. This buffer would extend from the Crabtree Creek to a contour line which is 20 feet above the creek bank (with one exception) at the mid-point of the common boundary. The width of this buffer area will generally range from 100 feet to 150 feet. The exception would be at the mouth of a wide ravine. If the contour line is followed here, it would extend several hundred feet into the property. Here we would expect to simply cross the ravine with a line approximately parallel to the creek and connect the crossing line to the same contour line on both sides of the ravine.

The objective in following a contour as opposed to providing a buffer of a designated width is to provide a natural vertical screen which is so high that the quarrying of stone will not be visible to persons on the Park property.

As to the buffer along the creek, we would need to reserve easements to cross for such purposes as connecting to any utility lines which are installed or required by any lawful authority, provide drainage and to withdraw water from the creek in the unlikely event that this should be necessary.

Whenever the quarrying of stone on our property is completed, my client will have no further need for the quarry area. At that time, my client will donate to the State for use as a part of Umstead Park all of those tracts of land shown on the enclosed map which are encompassed by an orange line and which consist of approximately 75 acres. We would provide that this gift would occur at the end of 50 years or 10 years after quarrying operations have ceased without having been resumed, whichever is later.

In order to protect and assure our ability to borrow money to finance the establishment of the quarry and to finance the expansion and upgrading of facilities from time to time, we would need to provide that the obligation to make the gift is subordinate to any bona fide encumbrances to which the property may be subjected from time to time.

The creation of the buffer zones and the obligation to make the gift of the property as above outlined would be provided for in a binding contract between the property owner and the State of North Carolina. This contract would be recorded and would run with the land whereby it would bind all subsequent owners of the property. Conditions for the creation of the buffer zones will be the acquisition of the property by me or my client and the rezoning of the property to an industrial classification. A condition of the gift will be the development of the property as a quarry.

It has been the experience of the quarrying industry that an abandoned quarry fills with pure ground water. The result is a beautiful lake with an abundant supply of clear water. A striking example of this is the lake in Lakestone Subdivision, one of Raleigh's best residential areas. Chapel Hill is now using a quarry lake to boost its overtaxed water supply. I am sure you can think of many more examples.

We believe that the lake site resulting from quarrying plus the additional land which we propose to donate will be a valuable addition to Umstead Park. Equally attractive, it will be provided without the substantial cost which the State would incur if it purchases our property.

In summary of the foregoing, because the State is willing to forego its right to acquire the subject property, the following benefits will accrue to the State and the community:

1. The State will save the substantial sum which would be necessary to acquire this property and make it available for other public park needs.

2. A valuable stone deposit will be made available for an area which cannot otherwise be served adequately.

3. Substantial money will be saved in the cost of paving I-40, other roads, the airport runway and the construction of many private buildings and developments.

4. The establishment of this quarry will contribute to the conservation of energy.

5. The quarry operation will not adversely affect the wildlife of Umstead Park.

6. The buffer areas to be established will assist Umstead Park in preserving a natural park atmosphere.

7. The future donation of 75 acres to Umstead Park will be a valuable addition and contribute to the public's enjoyment of the Park.

8. An additional benefit not previously discussed is that this valuable property will remain on the tax books of Wake County and as it is developed it will become increasingly valuable and yield additional taxes.

J. K., if you have read this far, I am grateful. I accepted the handling of this case in spite of the obvious possibility that the establishment of this quarry might be unpopular in its initial stages. However, I was convinced (and am now even more so) that this cause has tremendous merit, that Cary needs it, that Wake County needs it and that the State of North Carolina needs it. I have great hopes that in spite of the present local opposition around Cary, the Commissioners will nevertheless permit this quarry. I am positive that when it is constructed, it will immediately prove its worth and that its existence will not even be apparent.

Very truly yours,

ADAMS, SARGENT AND HINTON

By Thomas F. Adams Jr.

TFA/vjn
Enclosure

March 27, 1980

MEMORANDUM

TO: Jim Stevens

FROM: Charles H. Gardner Chas H. Gardner

SUBJECT: Proposed Rock Quarry near Umstead State Park

Wake Stone Company submitted an application on March 21, 1980 for a mining permit to operate a crushed stone quarry near Umstead State Park.

G.S. 74-51 of The Mining Act of 1971 enumerates the provisions for granting or denying a mining permit. Among the considerations is "that the operation will have a significantly adverse effect on the purposes of a publicly owned park, public road, forest or recreation area.

I am attaching a copy of the permit application and location map for your comment concerning the potential impact of the proposed operation upon Umstead State Park. James Simons of my staff is familiar with the site and can provide further information or a site inspection if desired.

The Mining Act requires action on a permit within 60 days. The proposed quarry is also on the agenda for the April 21, 1980 meeting of the Wake County Commission. Therefore, we are interested in receiving your comments as soon as possible.

Thank you for your assistance.

CHG:JDS:pg

cc: Steve Conrad

March 27, 1980

MEMORANDUM

TO: Frank Barick

FROM: Charles H. Gardner Chas H. Gardner

SUBJECT: Proposed Rock Quarry near Umstead State Park

Wake Stone Company submitted an application on March 21, 1980 to open a rock quarry on property adjoining Crabtree Creek, Umstead Park, and Raleigh Durham Airport.

Particular concern for wildlife resources has been expressed since the site is near the State Park.

I am attaching a copy of the permit application and location maps for comment on the potential effect of the quarry operation upon neighboring wildlife. James Simons of my staff is familiar with the site and can provide further information and can arrange a site inspection.

Due to statutory time limitation and an upcoming meeting of the Wake County Commissioners on April 21, 1980, we would appreciate your comments as soon as possible.

Thank you for your assistance.

CHG:JDS:pg

cc: Steve Conrad

March 28, 1980

MEMORANDUM

TO: File

FROM: Charles H. Gardner CHG

SUBJECT: Wake Stone-Proposed Umstead Quarry
Call from Jimmy Holland on 3/28/80

Jimmy Holland called this morning and related the following concerns:

1. Do NRCD environmental controls cover the whole property or just the quarry pit?

   I told him that NRCD covers environmental concerns (water, air, sedimentation) for the whole permit area and, in addition, would monitor adjacent areas for off-site impacts. I explained that our jurisdiction stops at the property line with respect to roads and truck traffic, and also that other agencies deal with mine personnel safety. Building permits are the county's concern.

2. The county would like to have a copy of the application, once it is completed, and Pete Hendrix of Wake Soil and Water District has requested (through Holland) that the Wake District be allowed to review the reclamation plan in the final version of the application (I suppose to review any changes from the plan he already approved).

   I told him I saw no problem with this request.

3. Wake Stone has applied for a Land Use Permit from the County. Holland said he would not grant the Land Use Permit for the quarry until NRCD has taken final action on the mining permit application, but that he could permit the moving of a trailer onto the site (which is apparently what Wake Stone has requested).

CHG:pg

cc: Steve Conrad
Jim Simons

North Carolina
Wildlife
Resources Commission
Archdale Building, 512 N. Salisbury Street, Raleigh, North Carolina 27611, 919-733-3391

March 31, 1980

MEMO TO: Charles Gardner

FROM: Frank B. Barick

SUBJECT: Proposed Rock Quarry near Umstead State Park

We have reviewed the application transmitted with your memo of March 21 and are pleased to comment as follows:

Experience here and in other states has demonstrated that the most significant impact of mining operations on wildlife is through degradation of surface waters through silting and release of noxious chemicals. Accordingly, the most important requirement in issuance of this permit should be stipulations preventing off-site transport of sediment or other water contaminants. The erosion control elements in the application appear to be helpful in this regard, but we would recommend that oil, grease and any chemicals used in or resulting from the processing of the ore be disposed of in a less potentially damaging way than by landfill.

The removal of vegetation during the mining process will remove wildlife habitat and render these acres non-contributory to sustenance of most life forms. Requiring re-vegetation after completion of mining should be required. Exposed high rock cliffs can constitute a hazard to deer and they should be fenced off to prevent such injuries and mortalities.

There may be some off-site impact on terrestrial forms due to noise but most species of wildlife soon become accustomed to such disturbance when they find that it does not represent targetted harassment. In our opinion such disturbance will constitute a much greater disturbance to those who come to the Park to enjoy the wildlife.

Please know that we appreciate your cooperation in affording us the opportunity to review and comment on this application.

FBB/dlp

Enclosures

Jim Simons

OFFICE OF
REGULATORY
RELATIONS

Anne Taylor
Director

Box 27687, Raleigh 27611
Telephone 919 733-6376

North Carolina Department of Natural Resources & Community Development

James B. Hunt, Jr., Governor

Howard N. Lee, Secretary

RECEIVED
APR 8 1980
LAND QUALITY SECTION

MEMORANDUM

Date: April 8, 1980

To: Charles Gardner

From: Bill Flournoy
Environmental Assessment Chief

B.F.

Re: Coordination on Cary Mining Permit

In accordance with the agreement reached at the March 31 Division Heads meeting, I will be happy to work with you on permit coordination for this sensitive issue.

Our A-95 and EIS review process is much broader than your mining permit review, and we appreciate your concurrence in using this expanded review. Attached, you will find a list of our review coordinators for your use. Through their envolvement, you can be assured that your review process will be beyond reproach.

Since many of these coordinators have never before had to consider the impact of mining, you may want to take one extra step to guarantee the quality of their inputs. If you could call them and your regular reviewers together, shortly after they receive background information on the permit application, then you could brief them on mining operations and the associated primary and secondary impacts. This meeting would allow for the cross pollenation of interest areas among the reviewers, and we have found this to be a most advantageous process when we use it.

I will be happy to assist you in setting the meeting up and will be most interested in attending.

BF:esp

A-95/EIS Coordinators

Bobby Stott
Department of Natural Resources and Community Development
Raleigh Regional Office
Raleigh, North Carolina

Jane Mangum
Soil and Water
5th Floor
Archdale Building
Raleigh, North Carolina

John Morris
Water Resources
Archdale Building
Raleigh, North Carolina

Frank Barick
Wildlife Resources
4th Floor
Archdale Building
Raleigh, North Carolina

Sam Taylor
Forest Resources
10th Floor
Archdale Building
Raleigh, North Carolina

Rex Minneman
Land Resources
5th Floor
Archdale Building
Raleigh, North Carolina

Allen Wahab
Environmental Management
11th Floor
Archdale Building
Raleigh, North Carolina

Bob Chandler
Community Assistance
6th Floor
Archdale Building
Raleigh, North Carolina

Bob Buckner
Parks and Recreation
7th Floor
Archdale
Raleigh, North Carolina

Jackie James
Community Housing
6th Floor
Archdale Building
Raleigh, North Carolina

Bill Towe
Economic Opportunity
6th Floor
Archdale Building
Raleigh, North Carolina

John Wray
Water Planning
Archdale Building
Raleigh, North Carolina

Allen Klemic
Division of Environmental Management
Archdale Building
Raleigh, North Carolina

File

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF LAND RESOURCES
Stephen G. Conrad, Director
Box 27687, Raleigh 27611
Telephone 919 733-3833

April 10, 1980

Mr. John Bratton, Jr.
President
Wake Stone Corporation
Box 190
Knightdale, North Carolina 27545

RE: Proposed Cary Quarry

Dear Mr. Bratton:

Thank you for your assistance in showing us the proposed site.

In our review of your application, there are several points which need further clarification. Some of these points have been raised in our conversation with you but are repeated here for documentation. These points and questions include:

1. P. 2, No. B (2) E & F: You indicate that three acres will be stripped initially for the mine excavation with 1.5 acres to be disturbed annually. The site plan shows approximately 8 acres of quarry excavation. Since quarry excavation cannot be incrementally reclaimed, a short explanation is needed giving the initial disturbance and estimating total forseeable quarry excavation disturbance.

2. P. 5, No. C (G): Although the vibration and airblast levels given are within our guidelines, some explanation is needed explaining how these levels will be maintained. It is realized that stemming, spacing, burden, and amount of explosives will vary. However, some explanation of your proposed general blasting practices is needed.

3. Reclamation Plan p. 6, No. 1: Identify the location or approximate location for the ponds described. Does this include the pre-existing ponds? Will the final quarry excavation be ponded or dry? If unknown, describe alternative.

4. Reclamation Plan, p. 7, No. 3: A better description of "suitable barriers" along the highwalls is needed. The purpose of such barriers is to prevent inadvertent public entry and to prevent hazard to larger forms of wildlife. Consideration should be given to substantial "hurricane" type fencing placed prior to beginning rock excavation.

5. Reclamation Plan, p. 7, No. 2: Describe gradient of final slopes in unconcolidated material. Generally a 3 horizontal to 1 vertical gradient is needed, if vegetation will be used for groundcover, for proper maintenance.

6. P. 4, No. 5: One of the main concerns is erosion control and slope stability, particularly at the quarry excavation. Please revise your erosion control plan to include measures discussed with you at the site on April 4, 1980. These measures include: a) the location of the freshwater pond below the quarry with additional sediment control measures located closer to the quarry, b) review of erosion control plans by this office as the mining operation develops and the timely implementation of these measures. You may of course develop alternative erosion control plans subject to our approval. Clarification is needed that runoff from disturbed plant and stockpile areas will be diverted into either a sediment control measure or into the plant waste water ponds.

7. Another main concern is the width of the buffer to be maintained along Crabtree Creek. A hundred foot width buffer is shown along the park boundary. Is this buffer expected to be wider than 100 feet?

   Additionally, we are concerned about where the quarry excavation will cross the ridge and break into the slope leading into Crabtree Creek. Assurance must be given that the quarry excavation will maintain adequate buffer-laterally and vertically-so that no impact will be made upon Crabtree Creek from the excavation.

8. P. 8, No. 8: Clarification is needed that oil, grease, or other potentially hazardous contaminants will be properly disposed and not landfilled.

We have mentioned some of these concerns with you previously and feel that these questions are reasonable. Prompt attention will be given to your reply.

Please advise if we can further explain our questions.

Sincerely,

James D. Simons

James D. Simons
Mining Specialist

cc: Jim Stevens
Frank Barick
John Holley
Charles Gardner
Steve Conrad

April 15, 1980

MEMORANDUM

TO: Billy Rose, Administrator, D.O.T.

FROM: Stephen G. Conrad

SUBJECT: Noise Levels at Proposed Cary Quarry

Wake Stone Company has applied for a mining permit to open a crushed stone quarry on 195 acres bordering I-40, Raleigh-Durham Airport property, the Reedy Creek Section of Umstead State Park and a small residential area. One of the primary objections to the proposed quarry is the noise impact on Umstead State Park.

I understand that personnel in your Planning and Research Section have had some experience in determining noise levels from highway traffic including the use of noise level monitoring equipment. It could greatly assist the quarry permit application review if members of my staff could consult with the members of your staff knowledgeable in noise determination and if your staff could assist in measuring existing noise levels at the property. By determining existing noise levels and estimating quarry operating noise, some indication of the noise impact upon the park could be made. Arrangements can be made to cover any costs involved in this assistance.

Due to statutory time limitation to act on a permit and an upcoming public meeting scheduled for April 30th, your prompt attention to the matter would be greatly appreciated.

Stephen G. Conrad

SGC:JDS:pg

Wake Stone Corporation

Locations at
U. S. 64 East, Raleigh, N. C.
U. S. 1 at Deep River, Moncure, N. C.

Phone:
919/266-9266 — Knightdale
919/775-4349 — Moncure

Home Office Address:
P. O. Box 190
Knightdale, N. C. 27545

RECEIVED
APR 18 1980
LAND QUALITY SECTION

April 17, 1980

Mr. James D. Simons, Mining Specialist
N. C. Dept. of Natural Resources & Community Development
P O Box 27687
Raleigh, North Carolina 27611

REFERENCE: Mining Permit for Proposed Cary Quarry

Dear Mr. Simons:

Following are replies to the points and questions raised in your letter of April 10, 1980:

1. The portion of the site plan marked "pit area" indicates only the area in which the initial stripping and excavation of about three acres will occur. The clear area on the map is not intended to convey an actual size of the initial operation. The dashed lines with arrows indicate that from the initial workings the pit will be expanded by about one and a half acres per year in a general north-south direction. Likewise, the erosion control measures shown will be expanded as the disturbed area is expanded. It is anticipated that the estimated total forseeable quarry excavation disturbance will be approximately eighteen acres.

2. In addition to the prior reply regarding precautions to be used when blasting, we wish to add the following explanation. A seismograph will be utilized to determine a desirable limit of explosives to be used in blasting. The seismograph, which we are presently using, measures ground movement in three directions plus air blast. By comparing the seismograph readings and blast records we will have excellent control in staying within guideline limits. Consulting services by a professional seismologist will provide further safeguards.

3. The location of the ponds described in the reclamation plan would be approximately where the pit area is indicated on the site plan. The pre-existing ponds would also be suitable for aquatic life. The final quarry excavation would be ponded.

4. Suitable barriers along tops of rock cuts could be very large boulders placed adjacent to each other to prevent inadvertent public entry and to prevent hazard to larger wild life.

Wake Stone Corporation

Locations at
U. S. 64 East, Raleigh, N. C.
U. S. 1 at Deep River, Moncure, N. C.

Phone:
919/266-9266 — Knightdale
919/775-4349 — Moncure

Home Office Address:
P. O. Box 190
Knightdale, N. C. 27545

5. The gradient of the final slopes in unconsolidated material will be no steeper than 1½ to 1, and will be planted with vegetation that would not require maintenance.

6. We would like to revise our erosion control plan to include: a) the location of a fresh water pond below the quarry with additional sediment control measures located closer to the quarry; b) we would request a review of erosion control plans by the Division of Land Resources, DNRCD, as the mining operation developes; c) runoff from disturbed plant and stockpile areas will be diverted into one or more sediment control measures before being released to either the reservoir, existing ponds, or the proposed pond below the pit area.

7. The park buffer zone will be based on a contour about 20' above the creek level. This will provide a varying lateral width but will approximate 100-150 feet. The quarry excavation will maintain adequate buffer, 50' to 75' laterally and 20' minimum vertically, so that no impact will be made upon Crabtree Creek.

8. All potentially hazardous contaminants such as oil and grease will be properly disposed and not landfilled.

Please advise, or call me at 266-9266, if further information is desired. Thank you for your assistance in this matter.

Sincerely,

WAKE STONE CORPORATION

John Bratton, Jr.

John Bratton, Jr.,P.E.

JB,JR/pw

April 17, 1980

MEMORANDUM

TO: Harvey Stuart

FROM: Charles Gardner CHG

SUBJECT: Applicability of the Mining Act to Truck Traffic

Dump truck traffic in areas neighboring mines is frequently associated with mining operations whenever the mined product must be transported to a processor or a consumer. The intensity of the traffic naturally varies considerably with the size of the mine and demand for the product. Increased truck traffic can pose additional traffic hazards, can increase road dust, and can damage the road surfaces. Although the mine operator is responsible for focusing the haul truck traffic to the area of the mine site, the mine operator normally has no control over the trucks except when the trucks are within the mine site itself.

We would appreciate your opinion concerning whether or not concentrated truck traffic could be considered as a part of the mining operation and would fall under the provisions of G.S. 74-51, (4) and (5) of The Mining Act of 1971.

CHG:JDS:pg

cc: Stephen G. Conrad

C/C Charles Gardner

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH 27611

JAMES B. HUNT, JR.
GOVERNOR

THOMAS W. BRADSHAW, JR.
SECRETARY

DIVISION OF HIGHWAYS

April 18, 1980

MEMORANDUM TO: Mr. Stephen G. Conrad
Director, Land Resources Division
Department of Natural Resources and
Community Development

FROM: Billy Rose
State Highway Administrator

SUBJECT: Noise Levels at Proposed Cary Quarry,
Wake County

This is to acknowledge receipt of your memorandum dated April 15, 1980, which requested the assistance of our staff in determining noise levels at the property proposed to be utilized for acquiring adjacent to I-40 north of Cary.

I have given a copy of your memorandum to Mr. T. L. Waters, Manager of our Planning and Research Branch, with the request that he contact you and make arrangements to provide such assistance as may be needed on a cost reimbursement basis. Mr. Waters will probably have contacted you before you receive this memorandum.

BR/sj

cc: Mr. T. L. Waters

4/21/80

NAME	AGENCY	PHONE
CHARLES H. GARDNER	LAND QUALITY	733-4574
CHARLES E. RUNDGREN	WATER SUPPLY BR. DIV. OF HEALTH SVS	733-2321
Charles A. Longstreet	N.C.F.S.	787-4688
J. L. "HARVEY" STUART	ATTY. GEN.	733-5725
W. HENRY WELLS	WAKE CO DNR	755-6838
C. A. MUSSER	WCDNR	755-6838
D.L. RICE	Wake Co. Insp. Dept	755-6313
Mitchell Duke	" " Health "	" " 6107
James D. Simons	Land Quality	733-4574
Bill Meyer	D.H.R Solid & Haz. Waste	733-2178
Bill Flonaway	NRCD - ORR	733-6376

MINING MEETING

4-21-80

State vs County Authority

County
Septic
Building Permit for office etc.

Crabtree Ck classified as "B" Stream

Jim

State of North Carolina
Department of Justice
P. O. Box 629
Raleigh
27602

RUFUS L. EDMISTEN
ATTORNEY GENERAL

23 April 1980

MEMORANDUM

TO: Charles Gardner HS

FROM: Harvey Stuart

RE: Applicability of Mining Act to Truck Traffic

This is in response to your April 17, 1980, memorandum in which you requested my opinion concerning whether the concentration of truck traffic at a mining site can be considered a part of the mining operation and thus subject to regulation pursuant to the Mining Act of 1971.

A portion of the definition of "mining" contained in G.S. 74-49(7) b. appears to be broad enough to include truck transportation of mined materials. However, the definition of "operator" contained in G.S. 74-49(9) would appear to exclude a common carrier, a hauling contractor or a consumer who picks up material at the mine site for transportation purposes only and is not otherwise involved in the mining of the material. There is no definition of the term "mining operation".

G.S. 74-51(4) and (5) allows the Department to deny a mining permit where the "(mining) operation" either constitutes a substantial physical hazard to a public road or will have a significantly adverse impact on a publicly owned park, forest or recreation area. In my opinion it is unclear whether truck traffic would constitute a part of the mining operation and thus be the subject of either permit denial or a permit condition. As to trucking operations conducted by the mine operator, the definition of mining may be broad enough to justify the regulation of this aspect of the operation. However, trucking operations conducted by third parties over whom the mine operator has no control would probably not be covered.

The potential for damage to public roads resulting from increased heavy truck traffic around a mine site should be addressed by the governmental unit which has responsibility for the maintenance of the road. There may be some authority given to the maintaining agency for the regulation of the use of the roads by heavy trucks. However, wear and tear damage to the roads would probably be considered only an indirect result of the mining operation and would probably not be considered a substantial physical hazard within the meaning of the Mining Act.

I hope that this discussion is sufficient for your purpose. Please feel free to contact me if you require additional information.

/rsw

cc: Mr. Steve Conrad

Landmark Engineering Tour 5-9-80 JDS

Phil Stanley area Tim Smith

> 15 cycles

1/10,000

Bldg on slab on Rx Foundation

Grade Beam Rx Foundation Slab 75'-100' x 4" or 4" gravel

Soil + Material did const. testing

Log E Robertson Copy plotter

Stereo plotter 2 μ

Kelsh K-320 Ortho scan

No of trucks daily

SAS Inst — Jim Goodnight

Truck every 5 min on ram

Dust on Trucks

8 May, 1980

North Carolina Department of Natural
Resources & Community Development
Division of Land Resources
P. O. Box 27687
Raleigh, NC 27611

ATTENTION: STEPHEN G. CONRAD, DIRECTOR

Dear Mr. Conrad:

I am enclosing a copy of Dr. J. Roland Yow's prepared statement concerning the effect of blasting at the proposed quarry near Umstead State Park on the equipment owned by Landmark Engineering. If you have any questions concerning the documentation, please contact either Dr. Yow or myself.

Very truly yours,

CORPORATE CONSULTING AND
DEVELOPMENT COMPANY, LTD.

Stephen A. Lehrman

Stephen A. Lehrman, P.E.
Senior Seismic Engineer

Enclosure

SAL/jb

cc: James D. Simons - NRCD (enc)
Phil Stanley - Landmark Eng. (enc)
Tim Smith - Landmark Eng. (enc)

Corporate Consulting & Development Company, Ltd.

Consultants Constructors

Koger Executive Center • 919-782-3441

P.O.Box 30096 • Raleigh, N.C. 27622

13 May 1980

North Carolina Department
of Natural Resources and
Community Development
Division of Land Resources
P. O. Box 27687
Raleigh, NC 27611

ATTENTION: JAMES D. SIMONS

Dear Jim:

Per our telephone conversation today, I am enclosing copies of two technical papers written by Professor A.J. Hendron of the University of Illinois. I am also enclosing the paper by Liu, Kinner, and Yegian titled "Ground Vibrations" from which are taken Figures 1 and 2 of Dr. Yow's statement. I trust this information will be useful to you in evaluating the effect of blasting on Landmark Engineering's equipment. If I can be of any further assistance to you, please do not hesitate to call.

Very truly yours,

CORPORATE CONSULTING AND
DEVELOPMENT COMPANY, LTD.

Stephen A. Lehrman

Stephen A. Lehrman, P.E.
Senior Seismic Engineer

Enclosures

SAL/bcs

CCL

Corporate Consulting & Development Company, Ltd.

Consultants Constructors

Koger Executive Center • 919-782-3441

P.O.Box 30096 • Raleigh, N.C. 27622

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF
LAND RESOURCES
Stephen G. Conrad, Director
Box 27687, Raleigh 27611
Telephone 919 733-3833

May 19, 1980

Mr. John Bratton, Jr., P. E.
Wake Stone Corporation
P. O. Box 190
Knightdale, North Carolina 27545

RE: Proposed Cary Quarry

Dear Mr. Bratton:

Following the public meeting on May 7, 1980 a further review of your application for the mining permit for the Cary Quarry has raised several additional questions concerning possible offsite effects of the quarry.

The following information is needed to facilitate the application review:

A. What impact on Crabtree Creek and neighboring active wells is pit dewatering likely to have?

B. What ground vibration from blasting is anticipated in the vicinity of Landmark Engineering Company's building? Along the same line, will blasting vibration endanger the proposed sewer line if the pipes are placed along the side of I-40 nearest the quarry?

C. Possible noise impact upon the park continues to be of great concern. At the public meeting, your consultant Ed Vic indicated that noise levels could be predicted. Noise contours should be drawn that consider noise from plant equipment, rock drilling, and truck traffic, including truck traffic at the intersection of S.R. 1652 and S.R. 1790.

D. What precautions will be taken to prevent an adverse offsite effect from fugitive dust from the pit area, haul road and access roads? Will the road leading to Harrison Avenue be paved to prevent excessive dust from truck traffic?

E. Will processing make up water be pumped from Crabtree Creek? If so, what is the estimated maximum hourly intake?

F. What is the maximum number of trucks departing from quarry anticipated during peak hours of operation?

G. The general erosion and sediment control plan addresses the concepts needed for the site. We realize that additional planning will be needed if the quarry develops. However, detailed plans and cross-sections are needed on the initial control measures, particularly the areas draining west of the plant/stockpile areas. The following items should be included in addition to the information already provided:

1. Brush barriers should be permanent at the clearing line if no additional disturbance will occurr.

2. Cut and fill slopes should be 2 to 1 or flatter.

3. Ditch lines should be designed and lined with rip-rap. Design details and location should be given.

4. Sediment basins should have solid riser to prevent low flow sediment discharge and velocity control devices at spillway outlet. Design should be a 25 year storm or higher. The location of the reservoir below the quarry area should be shown.

5. The buffer between the quarry pit west wall and Crabtree Creek should be completely undisturbed. Detailed plans and typical cross-sections are needed.

In addition to the above, the following is suggested:

1. The proposed reservoir N.E. of the plant should be constructed first.

2. The proposed fresh water pond below the quarry should be constructed next.

3. The sediment basin east of plant would be next and then the plant site could be cleared.

4. The diversion channel around the quarry should be dug in the dry and completely rip rapped prior to diverting any runoff into it.

5. Quarry should be required to stay a minimum of 30' vertical and 100' horizontally away from Crabtree Creek to provide 1) sediment buffer zone as required in Sediment Act and 2) provide protection for plant and other species in that shore line area.

Detailed drawings and narrative should be used to document the above designs and schedule.

Sufficient background information should be submitted to document your conclusions.

We will be happy to try to further clarify our request or discuss this with you.

Sincerely,

James D. Simons

James D. Simons
Mining Specialist

JDS:pg

cc: John Holley
Jim Stevens

May 20, 1980

MEMORANDUM

TO: Jim Stevens

FROM: Anne Taylor Anne

SUBJECT: Proposed Rock Quarry near Umstead Park

In thinking about the input made at the public hearing, it occurs to me that the department should look carefully at the cumulative impact of all state permitted action on the park.

My reason for recommending an extensive study is based on the experience with the Raleigh-Durham Airport noise issue and the "taking of land".

It occurs to me that we should look very carefully at any vulnerability we may have on this issue. Can we assure ourselves that regardless of whether the quarry people can meet all of our permit requirements, is the cumulative impact of the Rock Quarry and the Raleigh-Durham Airport expansion enough to constitute a "taking of land" which would require the Umstead Park conveyance to revert to the federal government.

This issue is one which our Office of Legal Affairs or the Attorney General's Office may want to be brought into. In the meantime, I am not sure what action you may want to take on requesting an extension of time, but this issue along with other research or study your people may need to have in order to determine any significant impact on the park might be used in justifying your request for an extension.

I appreciate your sharing with me information on this matter, and I hope you do not mind my expressing my concerns about the resolution of this question prior to the state taking action on the proposed quarry.

AT:kh:5922

North Carolina State Museum of Natural History
P. O. Box 27647, Raleigh, North Carolina 27611
(919) 733-7450

Dr. John Funderburg, Director

Research and Collections Section
Dr. John E. Cooper, Director

21 May 1980

Mr. James S. Stevens, Jr.
Director
N. C. State Parks
7th Floor, Archdale Bldg.

Dear Mr. Stevens,

In response to your request concerning the aquatic vertebrates of the W. B. Umstead State Park area, we provide the following information.

Species of particular interest known to occur in Crabtree Creek are the Carolina Mudpuppy (Necturus lewisi) and the Carolina Madtom (Noturus furiosus). Both were considered species of Special Concern in the 1977 publication Endangered and Threatened Plants and Animals of North Carolina. Necturus lewisi is the subject of pre-designation studies for possible Threatened status by the U. S. Fish and Wildlife Service.

The North Carolina State Museum of Natural History is conducting studies of Necturus lewisi under a cooperative agreement with the U. S. Fish and Wildlife Service, through the N. C. Wildlife Resources Commission. Sampling has confirmed the presence of N. lewisi in Crabtree Creek at State Road 1649, at the southeastern edge of the park. The species probably occurs along the entire section of Crabtree Creek in W. B. Umstead State Park.

Other species of Special Concern that could occur in Crabtree Creek are the Roanoke Bass (Ambloplites cavifrons), the Least Brook Lamprey (Lampetra aepyptera), and the Carolina Darter (Etheostoma collis).

A drop in water quality could effectuate declines in populations and in overall species diversity.

If I can provide any additional information of use to you, please contact me.

Sincerely,

Alvin L. Braswell
Curator of Lower Vertebrates

cc: John B. Funderburg
John E. Cooper, Alan Eakes
Robert Buckner, John Taggart
Richard Hazard

MEMO.

DATE: 5/28/80

TO: File

SUBJECT: Cary Quarry

John Bratton Jr called today concerning my letter of May 19, 1980 requesting additional information.

Mr. Bratton reviewed the request and stated that he would reply to the request as soon as possible.

JDS

North Carolina Department of Natural Resources & Community Development

APPENDIX A

GEOLOGICAL RESOURCES, INC.

400 OBERLIN ROAD • BOX 12424 • RALEIGH, NORTH CAROLINA 27605 • 919/832-9155

June 10, 1980

Mr. John Bratton
Wake Stone Corporation
Post Office Box 190
Knightdale, North Carolina 27545

Subject: Probable impact on Crabtree Creek and neighboring active wells caused by pit dewatering at the proposed Cary Quarry of Wake Stone Corporation

The quarry pit will be opened in a layer of gneiss that has formed a prominent ridge with a summit elevation approximately 100 feet above the level of Crabtree Creek (see figure). Visual inspection and borings indicate only shallow soils cover this ridge, unlike some other ridges nearby. These evidences of resistance to weathering and observations of rock outcrops along Crabtree Creek indicate that this rock is quite massive and generally more free of fractures than rock with similar composition nearby. Thus, it may be concluded that the rock to be quarried is a relatively poor conductor of ground water and that dewatering the pit would be minimally effective in lowering the ground water level in the area. The quarry pit would have to exceed 100 feet in depth below the present surface before the ground water table would begin to be affected much beyond the pit perimeter. Even at greater depths, pit dewatering is not expected to have any measurable effect on the flow of water in Crabtree Creek. This contention is supported by observations on a currently operating quarry located adjacent Crabtree Creek approximately three miles east of this proposed site.

It is anticipated that the initial pit working will be dry. Later, as the pit is deepened, water that seeps in will be mostly used as plant process water. Any excess that is required to be discharged will meet all state requirements for discharge water from a quarrying operation.

The nearest active wells are located at (1) the Macon Harris residence near the intersection of Harrison Avenue and I-40, a distance from the proposed pit of approximately 2,000 feet, and (2) an office park located on the south side of I-40 approximately 3,000 feet from the proposed quarry pit. Ground water tends to flow more readily and hence the cone of dispersion around a pumped area would tend to spread fartherest along joint and foliation directions in crystalline rocks such as the gneiss at the proposed quarry pit. Foliation at the site strikes N20°E and dips about 50° NW. Jointing is very poorly developed in this rock, but the

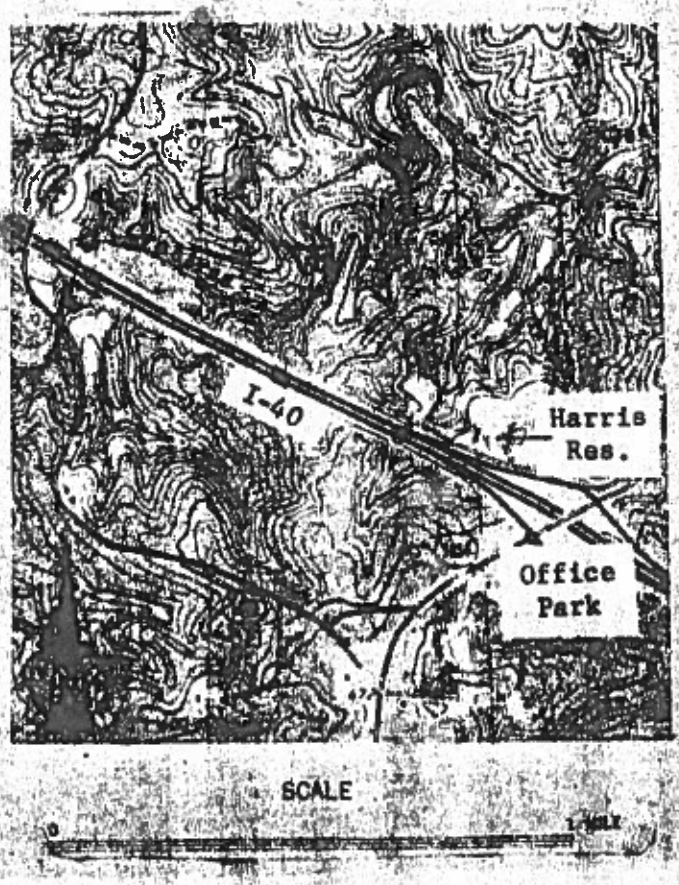
more prominent set strikes N55-85°W and dips steeply north (see figure). Similar observations are reported by Parker on this rock about 1.5 miles northeast of the proposed quarry pit (Parker, J. M., III, 1979, Geology and Mineral Resources of Wake County, Bull. 86, N. C. Dept. Natural Resources & Community Development, Geol. Survey Section, p. 97). Neither well-location site is located on strike with either foliation of or dominant joint set in the rock unit that would be quarried. In addition, the proposed quarry pit is separated from the wells by a large ridge with deep saprolite cover (up to 80+ feet based on site borings) and at least one valley that usually carries surface streams. It is not likely that a cone of depression in the water table around the proposed quarry pit would be able to reach these wells because (1) of the locations of the wells with respect to orientations of rock structures that control ground water flow directions, (2) of the great distances involved between wells and the proposed pit, and (3) permanent ponds and streams located closer than the proposed pit to these wells and deep saprolite cover on intervening ground should insure sufficient recharge to protect the wells from ground water table lowering.

Submitted by,

Henry S. Brown

Henry S. Brown, President
Geological Resources, Inc.

Site of
Wake Stone Corporation
Proposed Cary Quarry



52 Dip and strike of foliation
Dip and strike of joints

6-26-80

WAKE STONE CARY QUARRY

VDS

Freshwater near Plant –

Top of dam 344 Ht of dam - 24 ft

Elev 344 - 3.17 in^2 x 10000 ft^2/in^2 x $\frac{1\ ac}{43560}$ = .73 ac surface area

Elev 330 1.68 in^2 = .16 sur. ac. Elev. 336 1.09 in^2

Storage (Approx)

.73 ac	at elev 344	
.25 ac	336 →	3.92 ac-ft
.16	330	1.23
.01	320	.85
		6 ac-ft total

Freshwater Pond near Quarry

Top of Dam 284 Ht of Dam

Bottom -268

16 Ht of Dam

Elev 284 2.51 in^2 x $\frac{(100\ ft)^2}{in^2}$ x $\frac{1}{43560\ ft^2}$ = .57 ac

Elev 268 .06 = .01 ac

Storage 4.7

630-11

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
SOUTHEAST REGIONAL OFFICE
75 Spring Street S.W., Suite 1176
Atlanta, Georgia 30303

IN REPLY REFER TO:

RECEIVED
JUN 30 1980
NRCD OFFICE OF ADMINISTRATION

JUN 27 1980

Mr. Howard N. Lee
Secretary, North Carolina Department
of Natural Resources and
Community Development
Post Office Box 27687
Raleigh, North Carolina 27611

Dear Secretary Lee:

During the recent preparation of our annual Section 8 Report (PL 94-458) to Congress on damaged and threatened National Natural Landmarks (NNL's), it came to our attention that Piedmont Beech Natural Area, a registered NNL within William B. Umstead State Park, may be threatened by the proposed quarry operation along Crabtree Creek Watershed. This and other threats to the area will again necessitate its inclusion in our report.

Since this area is of national significance (copies of the Landmark Brief and Map are enclosed), we request that, prior to the issuance of any mining permit, every effort be made to insure that no long term adverse environmental impact will result from this operation. If no such assurances can be made, either through the use of appropriate management techniques (i.e., buffer zones, erosion control structures, etc.) or other wise, then we would suggest the permit be denied.

Since this matter is of special concern to us, we would appreciate it if you would keep us informed of its progress.

Sincerely yours,

for William H. O'Neal, Jr.
Assistant Regional Director
for Planning and Assistance

Enclosures

cc: Mr. James S. Stevens, Jr., Director,
Division of Parks and Recreation

Natural Landmark Brief

1. Site: Piedmont Beech Natural Area, Wake County, North Carolina

2. Description: This 50-acre tract, located within the William B. Umstead State Park, consists mainly of four large ravines which dissect a steep bluff that rises 110 feet above Crabtree Creek. Natural surface springs arise at the top of the bluff and trickle down the slopes. A rich mixed mesophytic upland hardwood forest dominated by beech occurs in the four ravines. One ravine contains an almost pure stand of beech with some dbh values over 30 inches, indicating a strong probability that it is a virgin remnant. A small undisturbed floodplain exists along Crabtree Creek in the western portion of the area and contains large trees of several species, including one swamp chestnut oak greater than 45 inches dbh. Loblolly pine grows under the more xeric conditions at the top of the bluff, more typical of Piedmont upland forests. Crabtree Creek, although suffering from siltation and damming of some of its tributary creeks, is apparently one of the last refuges of the beaver in this section of the State. The site is located approximately 7 miles northwest of Raleigh.

3. Owner: State of North Carolina, administered by the Division of State Parks, Department of Natural and Economic Resources.

4. Proposed by: Gary S. Waggoner in one of the Eastern Deciduous Forest theme studies.

5. Significance: This site is perhaps the finest example of mixed mesophytic forest in the eastern Piedmont of North Carolina; only small fragments of this vegetation type persist in the Piedmont. Unusually fine climax stands of beech occur in portions of the site, and several disjunct mountain species can be found here as well. Its proximity to several large nearby universities enhances its educational and scientific value.

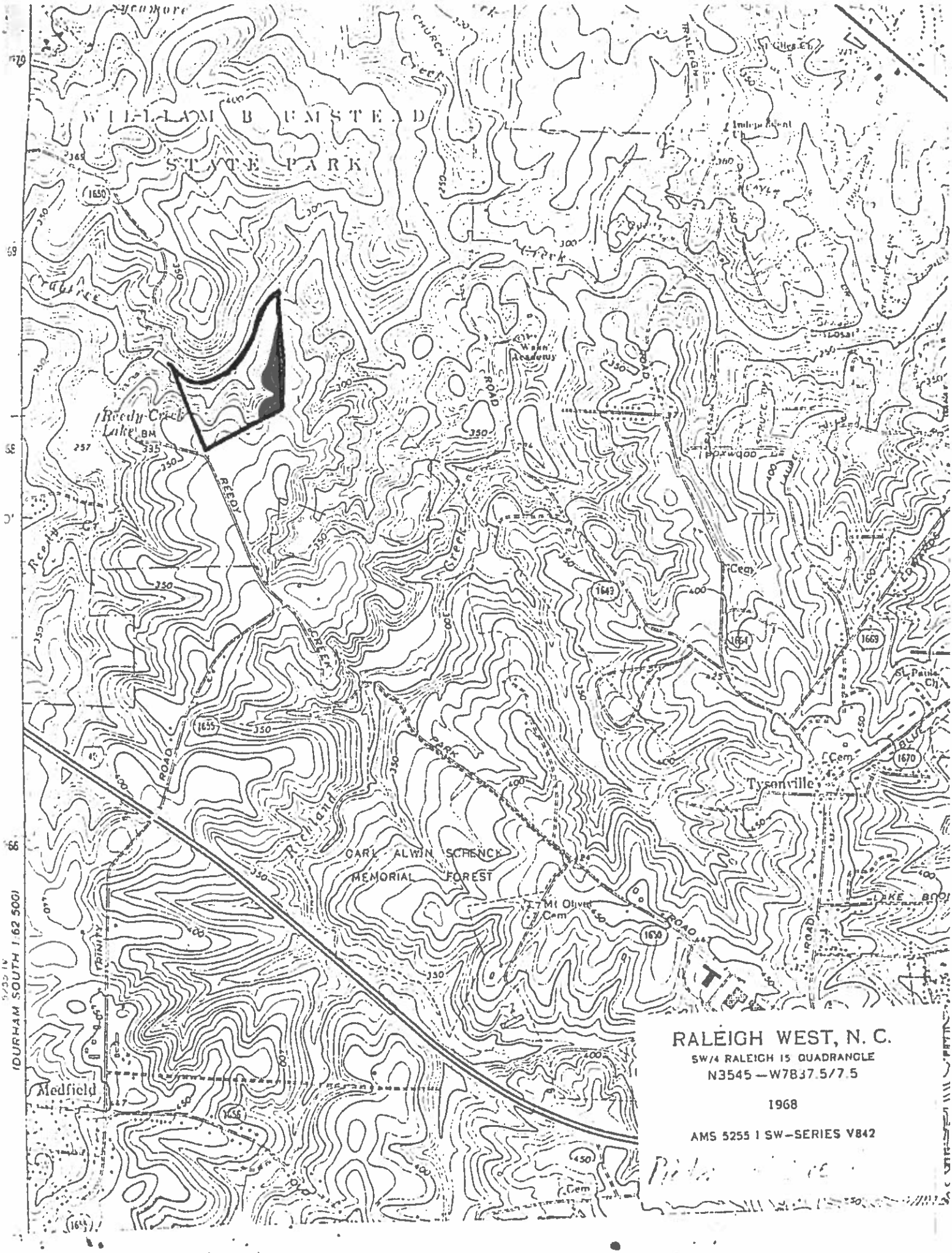
6. Land use: Since it is located within the boundaries of a State park, this natural area may be visited by many people. Hikers, fishermen and horseback riders now utilize trails located within the site, but not to the extent that the area is being badly damaged. Students and educators from several universities in the area use the site for nature study and demonstration.

7. Dangers to integrity: The site is located in a heavily populated section of the eastern Piedmont of North Carolina. Access to the site is somewhat hampered by the crude condition of the road adjacent to the natural area, but the State plans to improve this road in the future. A lake is being constructed nearby which will, no doubt, attract large numbers of people to the general vicinity.

8. Special conditions: The Society of American Foresters has previously designated the site as a natural area.

9. Studied by: Dr. Helmut Lieth, Professor of Botany, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina with assistance from Ms. Ellen York and Mr. Douglas Sharp, graduate students in plant ecology.

March 1974


WILLIAM B UMSTEAD
STATE PARK
Reedy Creek Lake BM
REEDY
CREEK
ROAD
Tysonville
Cem
CARL ALWIN SCHENCK
MEMORIAL FOREST
Mt Olivet Cem
Medfield
TRINITY
DURHAM SOUTH 1:62 500
RALEIGH WEST, N. C.
SW/4 RALEIGH 15 QUADRANGLE
N3545—W7837.5/7.5
1968
AMS 5255 I SW—SERIES V842

WAKE STONE QUARRY

SEDIMENT CONTROL PLAN
COMMENT

JDS
HKB 6/30/80
Relayed to Johnny Edwards 7/1/80

Const Schedule
4 before # 2 since borrow will come from quarry
Sed. control for dam const.

Basins before diversions

Detail on diversion leading to # 1 basin (30% slope)

Freshwater Res - plant process water goes to SCS basin
Stability of dam before pond. -
Clean out of freshwater pond - peninsular
+ pond
1b + 6 ?
✓ Dig around (E) of Freshwater Pond

Basin # 2 out of stream - no other place for it
div. +
replace by basin downhill of quarry + below diversion
outlet on east side of draw

~~Location of emergency spillway -~~
Basin size, pipe size, spaw size designed
to be individually designed
specs later

WAKE STONE SEDIMENT CONTROL
PLAN REVIEW JDS & HKB

Dam - emergency spillway, over flow pipe

Diversion at Plant Freshwater Pond
Sed. Basin
- Cleanout of Freshwater Pond - pennisula

Quarry Draw
Upstream ~~basin out of stream~~ - access
outflow

Downstream basin out of stream
Bank erosion

Downstream resv. clean up, emer. spw
size of SCS basins
Size of pits #1, #2 #3
Type 45 cfs
Basin #2 not
Specs on pipe
Erosion control for const of Ponds - Div to build outflow

Order
Basins before diversions
Step #2 before #3

#1b not necessary
Detail on diversion leading to #1
10% grade leading to Freshwater pond
#3 const

July 1980

Jim

If quarrying is confined to the ridge and descent exceed 100 feet in depth, the effect on the water table will be very limited.

Groundwater movement, generally, is from the direction of I 40 toward Cobbstone Creek, locally varying with gradients. The ridge in question is fairly well isolated by valleys on all but the southern side. I would anticipate that most effect would be to the south.

Shallow wells or ponds up gradient from the quarry must be adversly affected if the rock proves to be well fractured.

If mining extends below the grade of the Creek, seepage from the creek to the mine would be induced.

Perry

JOHN A. EDWARDS & COMPANY
333 Wade Avenue P. O. Box 10422
RALEIGH, NORTH CAROLINA 27605

(919) 828-4428

LETTER OF TRANSMITTAL

DATE 7/1/80 JOB NO.

ATTENTION

RE: WAKE STONE CORPORATION

TO JIM SIMONS
NORTH CAROLINA DEPT. OF
NATURAL RESOURCES
LAND QUALITY DEPT

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2	7/1		SOIL EROSION PLAN

RECEIVED JUL 1 1980 LAND QUALITY SECTION

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO _____

SIGNED: J. A. Edwards & Co.

Wake Stone Corporation

Locations at
U. S. 64 East, Raleigh, N. C.
U. S. 1 at Deep River, Moncure, N. C.

Phone:
919/266-9266 — Knightdale
919/775-4349 — Moncure

Home Office Address:
P. O. Box 190
Knightdale, N. C. 27545

July 3, 1980

Mr. James D. Simons, Mining Specialist
N. C. Dept. of Natural Resources & Community Development
P O Box 27687
Raleigh, North Carolina 27611

REFERENCE: Mining Permit for Proposed Cary Quarry

Dear Mr. Simons:

We expect the Cary Quarry to operate on a basic schedule of eight hours per day for five days per week. The hours would normally be from eight to five on Monday through Friday. There would be some maintenance work such as servicing the equipment beyond these periods. No night work is anticipated.

As we stated earlier, during peak loading periods the number of trucks would be about forty per hour. Past experience indicates that there is no pattern as to the time of day that the peak might occur.

Yours truly,

WAKE STONE CORPORATION

John Bratton, Jr.

John Bratton, Jr.,PE

JB,JR/pw

August 1, 1980

MEMORANDUM

TO: Jerry Sovelove - ext. 4181 5245

FROM: Alan Eakes

SUBJECT: William B. Umstead Quarry Impacts

I have met with Mr. H. C. Rhudy of D.O.T., Traffic Engineering (see attached correspondence) and have been given a response date of August 15, 1980. Mr. Rhudy will send staff to evaluate the potential impacts of trucks using the quarry with park traffic. I feel that D.O.T. input on this issue is critical enough for us to delay our report until we can review their data.

ARE/atw

cc: Jim Simons

enclosure

8/4/80
Jerry Sovelove says Parks will have memo to us by Tomorrow 8/5/80.
CHH

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF PARKS & RECREATION
James S. Stevens, Jr., Director
Box 27687, Raleigh 27611
Telephone 919 733-4181

August 5, 1980

Rec'd 8/5/80 CHG
COPIES TO:
STEVE CONRAD
LEON SIMMONS
FROM C. GARDNER

MEMORANDUM

TO: Mr. Charles Gardner, Chief
Land Quality Section
Division of Land Resources

FROM: Jerry M. Sovelove
Richard B. Hazard
Division of Parks and Recreation

SUBJECT: Preliminary Report - - Noise Levels and Required Buffer Zones
William B. Umstead State Park
Wake Stone Corp. - Mining Permit

In response to your request of July 25, 1980, we have completed a preliminary analysis of acceptable noise level impacts on William B. Umstead State Park resulting from the proposed crushed stone operation, and have formulated buffer requirements that will mitigate noise, visual, and unique natural resource impacts. A separate analysis, dealing with truck congestion impacts at the intersection of S.R. 1652 and S.R. 1790 should be completed by August 15, 1980.

One of the Division's main concerns centers around increased noise impacts to the Park. The deed of April 6, 1943 that transferred 5,088 acres of William B. Umstead State Park from the United States to the State of North Carolina expressed the condition: "the grantee...shall use the property exclusively for public park, recreational, and conservation purposes." Upon a finding that the grantee has failed to comply with these conditions during a period of more than 3 years, the lands shall be returned to the jurisdiction of the U. S. Department of Interior. In a similar vein, the utilization of USDI - Heritage Conservation and Recreation Service- Land and Water Conservation Fund monies at the park evokes Section 6(f) of PL 88-578 as amended by P L 95-42 "No property acquired or developed with

assistance under this section shall, without approval of the Secretary (of the Interior), be converted to other than public outdoor recreation uses. Finally, in the agreement developed in 1970 between the USDOT and the USDI concerning site selection criteria for the Everglades Jetport, it was agreed that noise levels in the Everglades National Park greater than a Composite Noise Rating (CNR) of 90 (which is approximately equivalent to 55 L_{dn}) critically affect the use of the park. Section 4(f) can be invoked either by a physical taking or by use of the land.

These three legal statements each require land replacement upon the finding of a taking of park land for non-recreational uses.

Recent noise testing and analysis conducted by Kimley-Horn and Associates, Inc. indicated an ambient noise level at two points on the boundary between the park and the Wake Stone property of 45 Leq. When combined with anticipated noise from the crushed stone operation, the combined Leq ranges from 53 to 55. These noise levels are adjusted for distance from the operation and a maximum vegetation noise attenuation but are not adjusted for topographic variations. By utilizing approximate conversion processes (L_{dn} is approximately 3 dBA higher than Leq, but L_{dn} is a daytime-nighttime average that essentially adds 10 dBA nightime weighting - a weighting that is not applicable due to projected quarry operation times), these noise levels are equivalent to 53 to 55 L_{dn}.

Therefore, future quarry operations are anticipated to produce noise impacts to William B. Umstead State Park.

Notwithstanding, current uses of the park region to be affected by quarry operation noise, center around natural area outdoor recreation, principally hiking and nature enjoyment. This is a significant regional land use when placed in the context of the existence of a large publically owned natural area amidst a rapidly growing urban area. Furthermore, the 1975 master plan for the park, which is endorsed by the N. C. Department of Natural Resources and Community Development recommends that this area remain in a natural state and be used only for wilderness camping and hiking. The design and space allocation for this area considered the existing and anticipated noise levels emanating from the RDU Airport, the nature of land base, and the amount of buffer between I-40 and the natural area (that existed in 1975).

As reported in a 1973 USDOT report "The degree of disturbance or annoyance of an unwanted noise depends essentially on three things: 1) the amount and nature of the intruding noise, 2) the amount of background noise, and 3) the nature of the activity of the people occupying the area where the noise is heard" (USDOT, 1973). With regard to point 1), the crushed stone operation will increase the base ambient noise levels, and will add peak noise (to essentially fill some of the gaps in the RDU Airport noise) such as that from blasting operations and from backup warning sirens from quarry vehicles. Other than periodic noise from the Airport, other background noise along the hiking trails along Crabtree Creek and within the natural area would consist of the natural noises of water, birds and animals, and tree leaves. Third, the activity of the people within the area would be centered around the appreciation and enjoyment of nature.

In a personnal communication dated August 17, 1977, Larry E. Meierotto (Deputy Assistant to the Secretary of the Interior) commented to Harold E. Little (Chief, Airport District Office, FAA) "We believe that recreational activities in Umstead State Park such as wilderness camping, nature interpretation, hiking, picnicking etc. are noise sensitive outdoor activities similar to those in the Everglades National Park and that noise levels greater than 90 CNR (55 L_{dn}) <u>critically</u> affect the use of the Park.

The Division of Parks and Recreation contends that any increase in noise levels from the current ambient levels could impact outdoor recreation visitor enjoyment of the natural area. Anticipated crushed stone operation noise impacts to the park will be at, and immediately less than those necessary for deed and Section 6 (f) land taking/replacement clauses.

With regard to visual resources, the proposed locations for the stockpile, crusher, and quarry on ridge tops will make the entire operation visible from several areas of the park. This situation would be magnified during the winter when the vegetative buffer becomes visually inoperative.

The Division of Parks and Recreation is in the final stages of preparing buffer recommendations. These buffers, to be located on the Wake Stone property, should be included as a mining permit condition if the State approves the mining permit. As mentioned earlier, the buffer is being recommended to mitigate noise, visual, and natural resource impacts resulting from the crushed stone operation. Although the final map is not completed (map necessary

due to the difficulty of a verbal description of a varying width buffer), the following outline follows the discussion we had with Jim Simons of your staff this morning.

1) Starting at the estern border of the property with Crabtree Creek, and generally moving east along the creek, all land between the creek and an elevation of 350 feet msl would be required as buffer. This would require the western edge of the pit to be moved uphill, and eastward approximately 75 to 100 feet.

2) The 0.6 acre freshwater pond could be moved uphill so that the top of the dam elevation was 290 to 300 feet msl versus the proposed elevation of 285 feet. This dam re-location would not change storage capacity, but it would reduce floodplain disturbance and allow a larger buffer strip. From the northwest corner of the pit buffer (at 350') the buffer line would extend to a line below the dam which would allow reasonable dam construction area.

3) From the northwest corner of the dam clearing limit line, the buffer area would resume following the 350' contour around, (and including the two ridges of the peninsula) to a point due north of, and 450 feet from the west corner of the freshwater reservoir (that is north of the stockpile).

4) From this point, the buffer line would extend ~~due~~ southeast to the boundary of the park.

This buffer would aid noise and visual impact mitigation, and, of equal importance, would provide some valuable natural resource protection for the slopes bordering Crabtree Creek. These slopes contain regionally significant floodplain and montane bluff vegetation consisting of mountain laurel, galax, wintergreen, mountain rosebay, partridge berry, trailing arbutus, and resurrection fern among other noteworthy species (Moore, 1980).

In addition, the buffer would allow a degree of watershed protection for Crabtree Creek which provides habitat for several aquatic vertebrates. Special Concern species (N. C. Museum of Natural History) known to occur in Crabtree are the Carolina Mudpuppy, Carolina Madtom, Roanoke Bass, Least Brook Lamprey, and the

Carolina Darter. The Carolina Mudpuppy is the subject of predisignation studies for possible threatened status by the U. S. Fish and Wildlife Service (Braswell, 1980).

To summarize the stated and inferred substance of this report:

1) Mining operations adjacent to William B. Umstead State Park will project increased noise levels over the park, at, or close to the extent constituting a taking of land.

2) Noise levels between current ambient and projected peaks will affect nature area recreational use, both as presently exists, and that planned by the 1975 Umstead Master Plan.

3) To mitigate the impacts of # 1 and 2, either the Master Plan will require revision (requiring NRCD approval) or the noise sources moved farther from the park or otherwise mitigated.

4) The Division recommends a varying width buffer around the property. This should be included as a special condition if the mining permit is approved. This buffer will aid noise, visual and natural resource. impact mitigation.

This report is preliminary, and discusses two of the several concerns the Division has about the proposed mining operation. This report is subject to revision upon the input from Alan Eakes and James S. Stevens, both of whom will not return from vacation until next week. We will submit the formal and final Division comment and opinion between August 14 to 19. During the interim, if any elaboration is required, please do not hesitate to call.

JMS/RBH/esm

cc: James S. Stevens
Alan R. Eakes

SELECTED REFERENCES

LISTED IN ORDER OF UTILIZATION

1) Memorandum - Alan R. Eakes, Chief of Design and Development, Division of Parks and Recreation, to H.C. Rhudy, Manager of Traffic Engineering, Division of Highways, NCDOT, July 30, 1980. [Proposed truck entrance to Harrison Ave. near the entrance of William B. Umstead State Park].

2) 56 Stat. 326 (deed from U.S.A. to N. C.)

3) Land and Water Conservation Fund Act of 1966 (as amended by P.L. 95-42).

4) Personal communication - Larry E. Meieroto, Deputy Assistant to the Secretary of the Interior, to Harold E. Little, Chief, Airport District, FAA. August 17, 1977.

5) Personal communication - Kimley-Horn and Associates, Inc. to John Bratton, Wake Stone Corporation, July 31, 1980. [Noise Analysis, Reedy Creek Park].

6) Raleigh-Durham Airport Long-Range Development Master Plan and Environmental Assessment, Technical Report - Appendices to Volume 1 - Appendix H (Noise, Noise Descritions and the Impact of Noise - Bolt Beranek and Newman, Inc.) pp. 18-19.

7) N. C. Department of Natural Resources and Community Development, Division of Parks and Recreation, 1974. Master Plan for William B. Umstead State Park.

8) U. S. Department of Transportation, Federal Highway Administration, National Highway Institute, 1973. Fundamentals and Abatement of Highway Traffic Noise. Report No. FHWA-HHI-HEV-73-7976-1.

9) Site investigation at Wake Stone Moncure Quarry - Jim Simons and Richard Hazard, May 2, 1980.

10) Memorandum - Julie Moore et.al., N. C. Natural Heritage Program, to James S. Stevens, Jr., Director, Division of Parks and Recreation, January 23, 1980. (Natural Significance of the Proposed Addition to Umstead State Park - Reedy Creek Section adjacent to Crabtree Creek and I-40).

11) N. C. State Museum of Natural History, 1977. Endangered and Threatened Plants and Animals of N. C.

12) Personal communication - Alvin L. Braswell, Curator of Lower Vertabrates, N. C. State Museum of Natural History, to James S. Stevens, Jr., Director, Division of Parks and Recreation, May 2, 1980. (Aquatic vertebrates of the William B. Umstead State Park area).

August 18, 1980

MEMORANDUM

TO: Steve Conrad

FROM: Charles Gardner CHG

SUBJECT: Report on Wake Stone-Cary Quarry Application Review

Attached is a report, prepared by Jim Simons, on our review of the subject mining permit application. It addresses all of the seven provisions of G.S. 74-51 under which an application can be denied, with special emphasis on consideration of possible effects on Umstead Park.

CHG:pg

8/1980

WAKE STONE COMPANY, INCORPORATED
CARY QUARRY, WAKE COUNTY
MINING APPLICATION REVIEW

AUGUST, 1980

PREPARED BY JAMES D. SIMONS, P.E.

Land Quality Section

Division of Land Resources

Department of Natural Resources and Community Development

WAKE STONE COMPANY, INCORPORATED

CARY QUARRY, WAKE COUNTY

MINING APPLICATION REVIEW

I. Introduction

Wake Stone Company applied for a mining permit for the Cary Quarry on March 21, 1980. The application drew immediate controversy due to its location near Crabtree Creek, Cary Zoning Jurisdiction, and the Reedy Creek Section of Umstead State Park. The purpose of this paper is to outline the history, the technical review, and conclusions of the review of the application.

APPLICATION REVIEW SUMMARY

II. G.S. 74-51 of The Mining Act of 1971 specifies seven provisions under which an application may be denied. This summary briefly outlines the applicant's response to these provisions.

1. "That any requirement of this Article or any rule or regulation promulgated hereunder will be violated by the proposed operation;"

   In general this is a "catch all" provision and is not considered applicable in this case. The mine operator has complied with the required application procedure. The application states the operator's plan to comply with the Act.

2. "That the operation will have unduly adverse effects on wildlife or fresh water, estuarine, or marine fisheries;"

   The Interagency Coordination Office of the Wildlife Resources Commission has stated that quarries have little effect on terrestrial wildlife in adjacent areas other than short term disturbance. The Land Quality Section's experience with quarries confirms this. Offsite sedimentation from the site could have an adverse impact upon aquatic wildlife in Crabtree Creek. If adequate precautions are taken, no significant adverse impact should occur. Sediment control is discussed in number 6.

3. "That the operation will violate standards of air quality, surface water quality, or ground water quality which have been promulgated by the Department of Natural Resources and Community Development;"

   The mine operator has obtained all required water and air permits. Information has been submitted indicating that no adverse impact upon offsite groundwater resources should occur. The operator proposes to control dust by wetting dust producing surfaces, paving roads where feasible, and revegetating spoil pile areas as soon as possible. Dust control is considered managable.

4. "That the operation will constitute a substantial physical hazard to a neighboring dwelling house, a school, church, hospital, commercial or industrial building, public road or other public property;"

   The proposed operation is situated such that the only potential offiste physical hazard would result from blasting. Routine blasting procedures greatly minimize the potential hazard of fly rock and air blast. However, offsite ground vibrations from blasting are of concern, particularly at the Landmark Engineering Company building which houses sensitive map making equipment. Limitation of maximum blasts can be made to prevent damage to this facility. This limitation would also prevent vibration damage to any other structure neighboring the quarry.

5. "That the operation will have a significantly adverse effect on the purposes of a publicly-owned park, forest or recreation area;"

   This provision largely overlaps with the other provisions. However, visible screening, truck traffic, and operating noise could have an adverse impace upon Umstead State Park and are addressed here.

   Visible Screening

   The existing site is heavily wooded and topographically screened from view from Interstate 40. Existing vegetation should provide adequate visual screening along the Crabtree Creek area, provided a wide natural buffer is maintained. The permit could be conditioned to include such a buffer as well as providing additional visual screening as necessary.

   Truck Traffic

   Traffic at the Intersection of SR 1790 and 1652 near the Reedy Creek park entrance will increase significantly. Approximately, 80 trucks per hour in peak hours of operation would be using the intersection. However, the proposed hours of operation are 8:00 A.M. - 5:00 P.M., Monday-Friday and peak hours represent only a portion of the operating hours. Consequently, it is doubtful that truck traffic impact upon the park alone could be considered sufficient reason for permit denial.

   Noise

   Quarry operations generate considerable noise which could hamper visitor enjoyment of the park facility. Preliminary review indicates that noise from the proposed operation could likely be heard within the park boundaries in the vicinity closest to the quarry. From the studies conducted, it appears that the operator could possibly maintain the average noise level at the park boundary to a 55 dBA Equilvalent Sound Level (leq) which corresponds with the required noise level limitation from the airport. However a 55 dBA (leq) could be sufficiently loud to cause adverse impact upon park enjoyment.

6. "That previous experience with similar operations indicates a substantial possibility that the operation will result in substantial deposits of sediment in stream beds or lakes, landslides, or acid water pollution; or"

   The nature of the proposed operation should not produce any offsite landslides or acid water pollution. A detailed erosion and sediment control plan was submitted, which if properly engineered and implemented should prevent significant offsite sedimentation. However the overall steepness of the topography particularly in the vicinity of the proposed quarry, and a small stream in the quarry site would make erosion and sediment control very difficult.

7. "That the operator has not corrected all violations which he may have committed under any prior permit and which resulted in

   a. Revocation of his permit,

   b. Forfeiture of part or all of his bond or other security,

   c. Conviction of a misdemeanor under G.S. &4-64, or

   d. Any other court order issued under G.S. &6-64.

   In the absence of any such finding, a permit shall be granted.

   The applicant has not committed any of the abovementioned violations. Hence, this provision is not applicable.

III. HISTORY

The application for a mining permit for the Cary Quarry was submitted in Raleigh on March 21, 1980 by John Bratton, Jr. and his consultant Dr. Henry Brown. Prior to receipt of the application, considerable controversy had already developed concerning the rezoning of the property of the proposed site and its proximity to the Reedy Creek area of Umstead State Park. Numerous public inquiries and complaints were sent to the Governor's Office and to the Department of Natural Resources and Community Development.

Additional information was requested from Wake Stone in a letter dated April 10, 1980. Wake Stone replied to this request by furnishing additional information on April 18, 1980.

Due to increasing public interest and possible misconceptions of the authority of The Mining Act of 1971, a public informational meeting was held at the Archdale Building at 7:30 May 7, 1980. Deputy Secretary Dr. E. Walton Jones conducted the meeting to explain the application review process. Assisting Dr. Jones were Stephen G. Conrad, Director of the Division of Land Resources; Jim Stevens, Division of Parks and Recreation; and Neil Grigg, Division of Environmental Management. Approximately 100 people attended the meeting, including 13 who spoke in opposition to the quarry. The operator, John Bratton of Wake Stone Company, his attorney Tom Adams, and consultants, Ed Vic-(Traffic), Phillip Berger-(Blasting), John Harris-"Tarheel Gardner" (Vegetation), presented a brief rebuttal to opposition to the quarry.

After further review of the application including discussions with the landscaping section of Parks and Recreation, additional information was requested from Wake Stone Company concerning groundwater, noise, dust, and sediment control. Wake Stone responded on June 26, 1980 to the Department's request by furnishing a detailed erosion control plan drawn by John A. Edwards and Company, a groundwater report prepared by Geologic Resources, Inc., a noise impact report prepared by Kimley-Horn and Associates, a blasting statement by Phillip Burger, seismologist, and other information pertaining to dust control, anticipated volume of truck traffic, make-up wastewater and operating hours prepared by John Bratton. Charles Gardner and Jim Simons subsequently met with John Bratton on several occassions to discuss or clarify information submitted, particularly related to noise and erosion control.

APPLICATION REVIEW

G.S. 74-51 of The Mining Act of 1971 provides that a permit may be denied upon finding:

1. The operation will have an unduly adverse effect on wildlife or fisheries by:

A. Substantial siltation of streams or lake beds,
B. increasing the average water temperature of adjacent waterways to a temperature detrimental to the pre-existing aquatic wildlife,
C. other conditions designated by the North Carolina Wildlife Resources Commission as being unduly detrimental to wildlife;

2. The operation will violate standards of air quality, surface water quality and ground water quality which have been set by the Environmental Management Commission;

3. The operation will constitute a substantial physical hazard to a neighboring dwelling house, church, school, hospital, commercial or industrial building, public road or other public property;

4. The operation will have a significantly adverse effect on the purposes of a publicly-owned park, forest or recreation area;
5. Previous experience with similar operations indicates a substantial possibility that the operation will result in substantial deposits of sediment in stream beds or lakes, landslides, or acid water pollution;
6. The operator has not corrected all violations which he may have committed under any prior permit and which resulted in:
   A. revocation of his permit,
   B. forfeiture of part or all of his bond or other security,
   C. conviction of a misdemeanor under under G.S. 74-64,
   D. any other court order issued under G.S. 74-64.
7. An application for a mining permit, including new permits or renewal permits, shall be denied when the operator by whom the application is submitted has had a previous permit suspended or revoked. Provided, when such operator gives evidence satisfactory to the department of his/her ability and intent to fully comply with the provisions of the act, rules and regulations promulgated hereunder, and the terms and conditions of his/her permit, including the approved reclamation plan, and that he/she has satisfactorily corrected all previous violations, the permit may be issued.

G.S. 74-51 further states that in the absence of any such findings, a permit shall be granted. In the above context, a review of the applicability of the above reasons for denial is given below.

1. "Violation of any requirement of Mining Act or rule or regulation." The mine operator followed the application procedure outlined in the Mine Permitting Regulations and complied with other requirements of the Act regarding his application. Consequently, this subsection was not considered to be a possible reason for permit denial.

2. Adverse effect upon wildlife. Potential adverse effect upon wildlife or fisheries could be subdivided into effect upon terrestial animals in the neighboring forests and aquatic life in Crabtree Creek.

   Experience at other quarries has shown that neighboring wildlife rapidly adjust to routine quarry activities and inhabit areas adjacent to quarries. Vegetation such as Sericea lespedeza used to stabilize affected areas has attracted certain species of wildlife at many quarries. No adverse offsite impact to terrestial wildlife is anticipated from the proposed quarry other than direct displacement of habitat.

   The primary potential adverse effect of the quarry would be offsite sedimentation since acid producing minerals or other toxic materials will not be mined nor processed. Large scale land disturbing activities can cause significant offsite sedimentation damaging to aquatic wildlife unless effective erosion and sediment control measures are implemented. Development of the proposed quarry site in the existing steep terrain can potentially cause "significant' sedimentation of Crabtree Creek. Sedimentation control evaluation is made in Number 6.

3. Violation of standards of air quality surface water quality, or groundwater quality promulgated by the Department of NR & CD. Wake Stone applied on March 21, 1980 for the required air emissions permit needed for the rock crusher and the wastewater recycling permit needed for the stone washwater processing. The operator indicated that water from the pit will be used

in the stone washing and will be recycled. Therefore, no discharge permit is needed.

As of July 1, 1980 the application for the air emission has been found to meet the requirements and the permit drafted. Permit was issued on July 7, 1980; wastewater processing permit issued on July 7, 1980.

No groundwater permit is needed. However, the possible lowering of water in adjacent wells from quarry dewatering is a possible concern. A groundwater report written by the operator's consulting geologist states that given the nature of groundwater movement in the rock deposits (gneiss) at the site and the quarry's location, groundwater withdrawal is not anticipated to have noticeable effect upon Crabtree Creek or neighboring wells. Based on experiences at other quarries and a review of the geology of the area, the consultant's report seems reasonable.

Another possible concern is excessive water usage of Crabtree Creek by the mine operation. The operator states that it is doubtful that any processing make-up water would be pumped from Crabtree Creek, but existing ponds would furnish water if needed. Experience at similar operations does indicate a relatively small water loss during stone washing which would have to be replaced. However, the freshwater reservoirs of similar size to the one proposed generally have more than adequate reserve storage to supply the make-up water until rainfall can replenish the reservoir to full capacity. In a critically dry period, the three existing ponds and one proposed pond could supply make-up water more readily than Crabtree Creek in any foreseeable dry period for this area. A permit provision

could be added if necessary to outline the amount that could be withdrawn from Crabtree Creek if the other sources were inadequate.

No permit is required to control fugitive dust resulting from certain truck traffic and blowing of overburden and waste areas. Sprayers on the crushing equipment are required by the Division of Environmental Management air emissions permit. Additionally, the operator states that he will control fugitive dust by wetting bore holes while drilling, watering haul road areas and paving where feasible. However, the operator has indicated that onsite fugitive dust will be controlled by watering trucks and revegetating spoil piles as soon as possible. Fugitive dust control is further discussed in Section 4.

Another potential source of dust is truck traffic along the access road leading to I-40. Excessive wind blown dust could reduce visibility along the adjacent section of I-40, adversely affect the residents living along the road and possibly adversely affect the purposes of the park. The operator has indicated that he would work out an arrangement with DOT to pave SR 1790 leading to Harrison Avenue. If such measures are strictly adhered, fugitive dust should be greatly reduced. Buffer strips, particularly adjacent to park property, would further reduce any adverse offsite impact.

4. <u>A substantial physical hazard to a neighboring house, commercial or industrial building, or public road</u>. The location of the proposed quarry excavation is well removed from any adjoining property line or house. Therefore, the only physical hazard from the quarry excavation will be inadvertent public entry onto the property in the vicinity of the highwall and potential offsite effects from blasting.

The operator has stated that inadvertent public entry into the highwall area will be prevented by a barrier of adjoining large boulders. Fencing could also be used. In any event, the operator is agreeable to maintaining a suitable barrier. Such a requirement is routinely required in mining permits. Since the proposed quarry is near a public use area, hurricane type fencing should be used along the highwall.

Blasting. Quarry blasting at the operation, if uncontrolled, could pose a hazard to neighboring houses, commercial buildings, and possibly Interstate 40. Possible adverse effects of quarry blasting include vibration, air blast and fly rock.

Concern was also expressed from neighboring businesses that relatively minor ground vibrations may cause adverse effect on sensitive equipment. Specifically, Landmark Engineering was concerned that relatively small ground vibration may necessitate the costly recalibration of sensitive map plotting equipment.

Location, spacing, and stemming of blast drill holes routinely used at existing quarries have greatly reduced the possibility of fly rock and excessive air blast. Normally, limitation of ground vibrations automatically reduces air blast to a non-damaging level. Due to the location of the quarry and the distance to adjoining property lines, fly rock and airblast should present no offsite hazard.

However, the potential for offsite damage from blasting ground vibrations does exist. Possible damage would include minor cracking in plaster, concrete, masonry or other structural features but would not endanger the safety of the structure or its occupants.

To prevent any damage to neighboring structures, the applicant provides that ground vibration levels will be limited to 1 in/sec peak particle velocity at the nearest structure, which is approximately 1500 feet from the quarry. Operators generally further reduce their amount of explosives to minimize complaints in actual practice. Peak particle velocities can be estimated by employing commonly accepted empirical formulas such as developed by the USBM and others. Assuming an estimated distance to the nearest residence from the quarry to be 1500 feet and an acceptable peak particle velocity of 1 in/sec, the maximum lb/delay in quarry blasting could be in excess of 1000 pounds. However, this amount of explosives would likely give an unacceptable peak particle velocity at Landmark Engineering (approximately 3500 feet from quarry). The vibration consultant for Landmark has indicated that vibration levels of approximately 0.03 may adversely affect the sensitive plotting equipment at Landmark. Therefore, maintaining a low vibration level at Landmark would appear to be the determining factor in sizing quarry blasts. Using the empirical formulas, it appears that a maximum of 300 lb/delay is needed to limit vibration levels to 0.03 in/sec or less at Landmark. Results from these empirical formulas cannot be considered precise, but reasonable blasting apparently can be conducted without adversely affecting nearby sensitive equipment. It must be recognized that this 300 lb/delay is only an estimate based on empirical formulas. The actual limitation may be increased or decreased after monitoring. The operator would have to assume monitoring responsibilities and liabilities. Limitation of blasting to avoid vibration interference at Landmark should prevent any hazard to other neighboring structures or to I-40.

5. "<u>The operation will have a significantly adverse effect on the purposes of a publicly owned park</u>." This provision is a major consideration in the application review since the proposed site is located across Crabtree Creek from the Reedy Creek section of Umstead State Park. Many of the potential adverse effects upon the park overlap other denial sections such as physical hazard, effect on wildlife, and offsite sedimentation. However, visual impact, noise, truck traffic and other impacts are not addressed elsewhere and could have an impact upon the purposes of the Reedy Creek section of the park. The Parks and Recreation Division was given a copy of the application information for review and were consulted regularly during the review process.

<u>Visual Impact</u>. The entire quarry operation disturbance as proposed is located at least 1500 feet from the existing park boundary. The existing wooded buffer should provide complete or nearly complete visual screening at the park boundary. However, future quarry or park expansion could place mine disturbance and park properties closer. The quarry as proposed would likely expand in the direction of the park property. Additionally, the RDU Airport Authority has proposed to possibly donate its property immediately across Crabtree Creek from the proposed quarry site in exchange for other park property affected by new runway expansion. Location of the quarry would make the airport property less desirable for park land.

Since the proposed quarry and plant sites are located on hillsides with no intervening hills to the Crabtree Creek park boundary, screening by earthen berms would be of limited benefit. Therefore, screening must

be provided by a wide wooded buffer zone. The existing woods appear to provide satisfactory screening for the initial operation. Additional evergreen trees could provide additional screening.

Noise Impact. Of all the possible impacts of the proposed quarry, noise impact upon Umstead State Park was the most difficult to evaluate.

Quarry operations are unavoidably noisy. Some of the specific activities within the operation may produce noise levels in excess of 100 dBA at immediate location of the activities. Current technology can greatly reduce noise but many noise sources have little control available.

Truck Noise. The noise impact report prepared by the applicant's consultant attempted to estimate the impact of truck traffic noise upon the park. The noise impact investigation involved measuring and averaging decibels with a sound level meter stationed at the intersection of SR 1652 and SR 1790, at the park entrance, and at the park parking lot. One loaded truck was used to provide the simulated truck traffic noise. The results of the report indicated that truck traffic should not adversely increase existing noise levels at the park entrance and would have virtually no impact within the park itself.

However, the noise effect of multiple trucks was not considered. Noise from multiple sources is cumulative to some extent. The operator has indicated that during peak hours as many as 40 loaded trucks per hour will

leave the quarry. (This would indicate a maximum of 80 trucks per hour entering and leaving the operation). With multiple trucks, the noise level can be expected to increase. With the assistance of personnel with D.O.T. the combined effect of noise from 80 trucks per hour was evaluated by a D.O.T. computer program-see appendix #1. It was concluded that the noise impact from truck traffic alone is not expected to have an adverse effect upon the park. However, the truck noise effect must be considered within the context of the total quarry noise.

Quarry and Processing Noise

In an effort to determine quarry operating noise levels, a sound level meter was used to measure noise levels at various distances at the existing Wake Stone quarry at Moncure and at park boundary areas neighboring the proposed quarry site. The results of the surveys are listed in Appendix B1. Although the survey was limited, it did give a general idea of existing ambient noise level in park areas nearest the proposed quarry site. The survey also gave some information of noise levels within an operating quarry and the noise reduction with distance.

The most applicable monitoring site at the Moncure Quarry was located 1900 feet down hill from the crusher area, and adjacent to Deep River. Monitoring at this site found that the quarry noise was hardly noticeable, except for occassional overreving of the mobile equipment and the back-up warning signals. The area between the soundlevel meter and the plant site was partially cleared but mostly wooded. This condition most closely approximates the anticipated conditions at the proposed quarry site.

Noise levels were also measured at the Nello Teer Crabtree Quarry and adjacent areas. These noise levels were found to be higher than at the Wake Stone Moncure Quarry.

Since noise impact is highly subjective, an attempt was made to use guidelines. An equivalent sound level (Leq) of about 45-48 dBA is generally recognized as quiet. In fact, natural background noise such as wind, in wooded areas can create noise levels greater than 50 dBA. An estimation was made of anticipated noise levels at the park boundary by combining the quarry noises with distances and combining the reduced noises at the park boundary-see Appendix B 3. An average noise level may include intermittent large noises which may be temporarily disturbing to park visitors.

Calculated Equivalent Noise Levels at two points along Crabtree Creek ranged from 54 to 59 dBA. Existing ambient noise levels at the areas was assumed to be 49 dBA. Mr. Bratton was contacted concerning the preliminary noise calculation. Subsequently, Bratton had Kimley-Horn Associates to review the Department's noise estimation and do their own analysis. The Kimley-Horn report dated July 31, 1980 essentially confirmed the Department's study. The independent noise analysis predicted a Leq noise level of 55 dBA at park boundary point A (indicated on site topo plan) and 53 dBA at park boundary point B. This compares to the Department's estimation of Leq of 59 dBA at point A and 54 at point B. The 4 dBA lower estimation at point A was justified by Kimley-Horn Associates by assuming a background Leq of 45 dBA at the park verses 49 dBA monitored by the Department and assuming the secondary crusher to be located 200 feet further away from the crusher and further from the park boundary.

Both the Department's and Kimley-Horn's estimation should represent the most adverse noise conditions or the maximum equivalent sound level at the park boundary, and were conducted using accepted methods. However, both analyses can only be considered approximate since the exact noise levels or number of equipment operating at any one time can only be estimated. Additionally, no allowance was given for any topographic or weather effects. The projected noise levels reflect average levels and do not reflect the "quality" of the noise. Periodic higher noise levels can be expected.

Some attempt was also made to correlate actual noise levels at varying distances at existing quarries with the proposed quarry site. The results of the correlation are mixed, but in general support the projection that quarry noise would be heard at Crabtree Creek park boundary nearest the quarry. Moving away from the Crabtree Creek park boundary, anticipated quarry noises would be further reduced.

Noise Comment

Noise associated with the quarry will be greatly reduced by the existing vegetation and by the distance to the park boundary (approximately 1200 feet minimum). Additionally, existing ambient noise levels within the park will further muffle quarry noises to some extent.

Preliminary calculations show that noise increase at the Crabtree Creek Park boundary would be at least "noticeable" and could be significant enough to have an adverse effect upon the enjoyment of the park in those areas.

Before noise impact on the park could be considered as a reason for permit denial, two measures had to be taken. First, the applicant was consulted about noise sources from the proposed operations. The noise assumption used in the calculations were conservative and could vary from the actual equipment to be used. The operator may be able to take measures to considerably reduce equipment noise. Secondly, a determination had to be made of acceptable noise levels. This determination was made with close coordination with park officials.

As previously mentioned, the operator was contacted concerning the Department's noise analysis. Secondly, the Division of Parks and Recreation was consulted to determine a tolerable noise level at the park boundary. Park officials indicated that any noise above the ambient level would have an adverse effect upon park users near the boundary since this park area is designed to remain as natural as possible. However, previous experience with regulating noise levels from the airport as well as previous experience at other parks indicated that a maximum equivalent sound level at the park boundary of 55 dBA should be used.

Noise monitoring at other quarries and the noise estimation for this site indicate that the operator should be able to maintain an equivalent sound level below 55 dBA at the park boundary provided a wide enough buffer is used and provided equipment utilized is no louder than the equipment monitored in the noise analysis.

However, equivalent sound level (Leq) does not really address the "quality of the sound" nor its impact on humans. Whereas natural background noises in wooded areas often exceed 55 dBA, a 55 dBA from heavy equipment would be considered relatively "loud" or objectionable. On this basis, it is questionable whether or not the 55 dBA Leq previously established by the Federal Aviation Authority is adequate in considering noise from the proposed quarry operation.

Truck Traffic. Since truck noise has already been discussed, this section discusses the impact of truck traffic upon park users. The operator states in a letter to the Department that approximately 40 loaded trucks per hour would be leaving the quarry during peak hours, an approximate total of 80 trucks per hour would be passing through the intersection of SR 1652 and Sr 1790. The proposed operating hours would be Monday-Friday, 8:00 A.M. to 5:00 P.M. with no night or week-end traffic. The intersection of SR 1652 and SR 1790 is located approximately 300 feet from the park entrance and 400 feet from I-40.

No doubt the focusing of heavy truck traffic in this area may have some adverse effect upon local traffic on Reedy Creek Park in the vicinity of I-40. However, present park traffic into the park at this entrance is light during the hours when the quarry would be operating. While recognizing that truck traffic could possibly interfere with park traffic, it is very doubtful that this possible impact would be significant enough to provide a reason to deny a permit.

6. Previous experience with similar operations indicates a substantial possibility of substantial offsite sedimentation, landslides, or acid water pollution. No acid water pollution is anticipated since the materials to be mined are not acid producing and the proposed operation will not utilize acid or other contaminants in the product processing.

Landslides or rock fall are always a possibility during deep excavation. Spoil piled on the steep natural slope between the proposed excavation and Crabtree Creek could be subject to mass movement and possibly causing extensive sedimentation of the stream. However, with the excavation sloping internal to the site, no potential offsite impact or hazards exist.

Erosion and Sediment Control. Erosion and sediment control is particularly important at this site because of the potential for offsite sedimentation due to the following:

1. Steep topography particularly in the area of proposed quarry excavation
2. Proximity to Crabtree Creek
3. Quarry excavation will be started by excavating into a hillside.

The operator has submitted a generalized erosion and sediment control concept and a detailed site plan and specifications as drafted by his consultant. The plan has been revised twice. Provisions are made in the plan for some further adjustment as the exact location of all disturbances could not be determined. General specifications for the design of the freshwater reservoirs and sediment basins are given. Specific design detail will be submitted for approval of each structure after its exact location has been determined. The mine operator has indicated a willingness to modify the plan as may be reasonably required.

The revised erosion and sediment control plan appears to be workable but would require strict adherence to the plan to prevent significant offsite sedimentation. The proposed freshwater reservoirs and existing ponds should provide an adequate safety factor in sedimentation control. However, the construction of the reservoirs could cause significant offsite sedimentation due to the steep gradient and the proximity to Crabtree Creek. Field adjustment and more design detail may be needed prior to implementation. Since erosion and sediment control is critical at this site, close monitoring will be needed to insure adherence to the plan.

7. <u>The operator has not corrected all violations committed under any prior permit which resulted in</u>:

   A. Revocation of permit

   B. Bond forfeiture

   C. Conviction of a misdemeanor under G.S. 74-64

   D. Any other court order issued under G.S. 74-64

Wake Stone Company, Incorporated has two existing permitted operations, the Moncure Quarry and the Knightdale Quarry. The operator has never had a violation of the nature of A-D above and has been cooperative and prompt in correcting minor erosion control deficiencies. Hence, this subsection is not applicable in the review of the Cary Quarry.

APPENDIX A

BLASTING ANALYSIS

Given: Peak Particle Velocity of 1 in/sec at 1500 feet (nearest house)

Determine maximum pounds per delay

$$V = 160 \left\{ \frac{R}{W^{1/2}} \right\}^{-1.6}$$

ref. DuPont "Blasters' Handbook" 1977

$$1 \text{ in/sec} = 160 \left\{ \frac{1500 \text{ feet}}{W^{1/2}} \right\}^{-1.6}$$

Trial and error W= 3600 pounds will give 1"@ 1500 feet

Distance to Landmark=3500 feet

$$160 \left\{ \frac{3500}{3600^{1/2}} \right\}^{-1.6} = .24 \text{ in/sec}$$ (greater than level indicated by Landmark Engineering as tolerable i.e. .03 in/sec)

Therefore, it appears that maintaining an extremely low vibration level at Landmark not the nearest house to the quarry will be the controlling factor in determining blast amounts.

Find W required to give 0.03 in @ 3500
Trial and error

$$160 \left\{ \frac{3500}{W^{1/2}} \right\}^{-1.6} = V$$ Maximum pound/delay = 275

W=500 lb.	V=.049	
W=400 lb.	V=.041	
W=300 lb.	V=.033	
W=350 lb.	V=.037	
W=250 lb.	V=.028	
W=275 lb.	V=.031 good	

at house @ 1500

$$160 \left\{ \frac{1500)}{275^{1/2}} \right\}^{-1.6} = 0.12$$

Reference "Ground Vibration andDamage Caused by Blasting in Rock," A.J. Hendron University of Illinois

Using V= 0.72 inch/second X

$$\left(\frac{100 \text{ feet}}{R}\right)^{1.46} \times \left(\frac{W}{10 \text{ pounds}}\right)^{0.48} \times \left(\frac{4.66}{\rho}\right)^{.48}$$

R=3500'	W=275 lb	V=.018
	300	.019
	500	.024
	600	.027
	700	.029
	400	.022

Note:

$$\frac{\rho = 177 \text{ lb/ft}^3 \text{ assumed unit wt for gneiss}}{32.3 \text{ ft/sec}^2 \text{ acceleration of gravity}}$$

Ignoring this factor as suggested in the reference results in increasing the peak particle velocities (V) by .002.

APPENDIX B

1. NOISE MONITORING

LOCATION	DATE	APPROX. TIME	Equivalent Sound Level (LEQ)
Reedy Creek Picnic Area (300' from parking lot)	5-1-80 (Thurs.)	1:00 PM	44
Reedy Creek Parking Lot (SW Corner)	5-1-80	12:00 PM	48
Access Road to Reedy Creek Park (Int. SR 1652/ 1790)	5-1-80	1:30 PM	55
Wake Stone Moncure Quarry (Haul road into pit)	5-2-80 (Fri.)	1:00 PM	69
Wake Stone Moncure Quarry (50' from primary crusher)	5-2-80	1:30 PM	87
Wake Stone Moncure Quarry (300' from primary crusher)	5-2-80	1:45 PM	78
Wake Stone Moncure Quarry (50' from secondary crusher)	5-2-80	2:00 PM	85
Wake Stone Moncure Quarry (South side of Deep River approximately 600 upstream from dam) approximately 1900 feet from crusher	5-2-80	2:15 PM	47
Access Road to Reedy Creek Park (Int. SR 1652/ 1790)	5-4-80 (Sun.)	12:00 PM	54
Reedy Creek Picnic Area (near P. Lot-400')	5-4-80	12:10 PM	44
Reedy Creek Picnic Area (500' Wof Picnic Shelter)	5-4-80	12:35 PM	53
Reedy Creek Picnic Area	5-4-80	3:40 PM	50
Reedy Creek Park (Adjacent to Crabtree Creek @ Res. Valley)	5-4-80	4:15PM	49
West Side of Crabtree (Opposite Proposed Quarry)	5-4-80	10:20 AM	46

APPENDIX B

NOISE ANALYSIS

2. Truck Noise- along SR 1790 Access Road

Assume 80 heavy trucks/hour-(40 in-40 out) at 35 mph

DOT Computer Run Equivalent Sound Level Leq		Assumed (1) Existing Ambient Leq	Combined (2) Leq
LEQ @ 17 m from Intersection SR 1790 and 1652	68	55	68
LEQ @ 150 m nearest park boundary	52	48	53
LEQ @ 335 m Parking Lot	45	47	49
LEQ @ 518 m Picnic Area	41	44	45

Note: Increase of 3 dBA is considered perceiveable
Increase of 10 dBA is considered to double noise level

(1) Based on previous monitoring
(2) Sound levels added in accordance to procedure outlined in "Fundamentals and Abatement of Highway Traffic Noise," U.S. Department of Transportation, June 1973.

3. Quarry and Processing Noise

Assume: Crusher, secondary crusher, front end loader, heavy truck, and two air track drills will be in operation at any given time in addition to the 80 trucks per hour.

Procedure Used: Consider each source a point source; reduce noise level with distance according to procedure outlined in reference (2); empirically combine noise sources at different areas at the park boundary.

Approximate Equivalent Noise Level @ 50' from Quarry Equipment
Air Drill (AD) 87 dBA assumed at closest quarry area to park boundary
Crusher (C) 87 dBA
Secondard Crusher (SC) 85 dBA
Heavy "pit" haul truck (PHT) 90 dBA
Loader (L) 70 dBA
Highway Haul Trucks (HHT) 68 dBA

Location at Park Boundary	Typical Distance Noise from Source	Noise Reduction (4) formula with distance	Equipment Noise level at park	Assumed Existing Ambient LEQ	Combined LEQ	Net dBA Increases
(3) A	AD 1220 Ft.	28 + 10 (vegetation)	54	49	59 w/o AD	16
	AD 1220 Ft.	28 + 10	54		54	5
	C 1240 Ft.	28 + 10	49			
	SC 1240 Ft.	28 + 10	47			
	PHT 1240 Ft.	28 + 10	52			
	L 1640 Ft.	31 + 10	29			
	HHT 1780 Ft.	32 + 10	26			
	HHT 2900 Ft.	37 + 10	21			
B	AD 1850 Ft.	32 + 10	45	49	54	10
	AD 1850 Ft.	32 + 10	45		54 w/o Air Drill	5
	C 1350 Ft.	29 + 10	48			
	SC 1350 Ft.	29 + 10	46			
	PHT 1350 Ft.	29 + 10	31			
	L 1720 Ft.	31 + 10	29			
	HHT 1920 Ft.	33 + 10	21			

(3) Location noted on erosion control plan

(4) Noise reduced according to $20 \log \left(\frac{D}{50}\right) + \left(\frac{D-1000}{1000}\right)$ from ref (2) and vegetation assumed (10 dBA maximum reduction) for vegetation
No topographic sound barriers assumed.

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF
LAND RESOURCES
Stephen G. Conrad, Director
Box 27687, Raleigh 27611
Telephone 919 733-3833

August 22, 1980

Mr. John Bratton
Wake Stone Corporation
Box 190
Knightdale, North Carolina 27545

Dear Mr. Bratton:

A detailed evaluation has been made of your application for a mining permit for the Cary quarry in accordance with G.S. 74-51.

The evaluation consisted of site inspection, engineering analyses and several discussions between you and members of my staff. Based on this evaluation, I find that the proposed quarry operation would have a significantly adverse effect on the purposes of a publically owned park, forest, or recreation area and your permit application is hereby denied. (G.S. 74-51 (5)).

The combined effects of noise, sedimentation, dust, traffic and blasting vibration associated with the proposed quarry operation would produce primary impacts on William B. Umstead State Park in the form of noise intrusion and deterioration of visual resources. Our evaluation of your permit application further indicates there are no feasible modifications that can be made to the application that would make it acceptable.

In accordance with G.S. 74-61 you may appeal this decision to the North Carolina Mining Commission, provided such appeal is made within 60 days after receipt of this notice. Your request for a hearing should be addressed to Dr. Henry B. Smith, Chairman, North Carolina Mining Commission, 3405 Caldwell Drive, Raleigh, North Carolina 27607, with a copy to this office.

Very truly yours,

Stephen G. Conrad

Stephen G. Conrad, Director

SGC/ps

MEETING WITH PARKS & RECREATION

8-22-80

Rick Hazard, Alan Eakes, Jerry Sovelque, SGC, CHS, JDS

Wake Stone Corporation

Locations at
U. S. 64 East, Raleigh, N. C.
U. S. 1 at Deep River, Moncure, N. C.

Phone:
919/266-9266 — Knightdale
919/775-7349 — Moncure

Home Office Address:
P. O. Box 190
Knightdale, N. C. 27545

September 16, 1980

Dr. Henry B. Smith, Chairman, N. C. Mining Commission
N. C. State University
225 Riddick Building
Raleigh, N. C. 27607

Dear Dr. Smith:

On behalf of Wake Stone Corporation I hereby request a hearing before the N. C. Mining Commission to appeal a denial for a mining permit dated August 22, 1980 by Mr. Stephen G. Conrad, Director, Division of Land Resources. The date of the application for the permit was May 26, 1980 and additional information was provided on April 9, 1980.

We would appreciate the hearing being held as expeditiously as possible.

Yours truly,

WAKE STONE CORPORATION

John Bratton, Jr.

John Bratton, Jr.

JB,JR/pw

cc: Mr. Stephen G. Conrad, Director
N.C.D.N.R.C.D.
Box 27687
Raleigh, N. C. 27611

cc Stevie Conlan
Jim Simons
9/25/80

September 23, 1980

MEMORANDUM

TO: Anne Taylor, Director
Office of Regulatory Relations

FROM: Jim Stevens, Director
Division of Parks and Recreation

SUBJECT: Rock Quarry - William B. Umstead State Park

You asked that we submit a statement that could be transmitted to Dr. Walton Jones concerning our position with respect to the subject identified above.

As stated during staff meeting, September 22, we plan to close the entrance from US 70. We still plan to acquire land so that the main entrance can be established when DOT completes a connection between I-40 and US 70. This means that the entrance from I-40 at Harrison Street remains a very significant factor.

Our position or the data we submitted to Land Resources Division has not changed. It is our plan to remain consistent unless new information that could stand the test of legal action is submitted.

JSS/w

cc: Charles Gardner
Sam Thomasson
Bill Webster
Jerry Sovelove
Alan Eakes

file

3405 Caldwell Drive
Raleigh, North Carolina 27607
September 22, 1980

Mr. John Bratton, Jr.
Wake Stone Corporation
P. O. Box 190
Knightdale, North Carolina 27545

Dear Mr. Bratton:

This is to acknowledge your letter dated September 16, 1980 in which you request a hearing before the North Carolina Mining Commission to appeal an action of the North Carolina Division of Land Resources in which you were denied a mining permit.

The Commission accepts your request for an appeal and efforts are being made to establish an appropriate time and place for the hearing. This will be held in accordance with the provisions of Section 74-61. Appeals of the North Carolina Mining Act of 1971. The hearing will be conducted under the practices of the State of North Carolina.

As soon as an appropriate time and place can be identified, you will be informed.

Sincerely,

Henry B. Smith

Henry B. Smith
Chairman
North Carolina Mining Commission

cc: S. G. Conrad
Charles Gardner
Division of Land Resources
P. O. Box 27687
Raleigh, N. C. 27611

DIVISION OF PARKS AND RECREATION

N. C. Dept. of Natural Resources & Community Development
P. O. Box 27687
Raleigh, N. C. 27611

Administration/State Parks 733-4181
Master Planning/Engineering 733-5245
Planning and Research 733-7795
Rec./Consulting Section 733-7701

MESSAGE

TO Steve Conrad

RE: Report on Rock Quarry USP

DATE 9/25/80

Our Homestead State Park-rock quarry report to you (final draft) is public information if it is in your public file folder. Bill Doncette or anyone else can have a copy of our report and you can feel free to release it. It would

BY

INSTRUCTIONS TO SENDER
1. KEEP YELLOW COPY. 2. SEND WHITE AND PINK COPIES

REPLY

~~DATE~~ be nice to have a record some where that indicates who received a copy of the report.

Please see that Charles and Jim Simons in particular are aware of this memo.

Jim Stevens

SIGNED

INSTRUCTIONS TO RECEIVER
1. WRITE REPLY. 2. DETACH STUB, KEEP PINK COPY, RETURN WHITE COPY TO SENDER.

September 25, 1980

MEMORANDUM

TO: Bill Raney
Harvey Stuart

FROM: Stephen G. Conrad

SUBJECT: Wake Stone Corporation
Mining Permit Appeal

An application submitted by Wake Stone Corporation to open a crushed stone quarry adjacent to Umstead State Park, Wake County was denied by the Department on August 25, 1980, on the basis of having an adverse effect upon the park, G.S. 74-51(5). John Bratton, Jr., President of Wake Stone Corporation has formally requested to appeal this denial to the Mining Commission as provided by G.S. 74-61. A Commission meeting is scheduled to hear this appeal on November 6, 1980, 10:00 A.M. in the Hearing Room.

I would appreciate your assistance in the preparation and presentation of our case to the Mining Commission. My staff will be happy to provide background or file information and assistance.

Stephen G. Conrad

SGC:JDS:pg

cc: Bill Ross/David Heeter

RUFUS L. EDMISTEN
ATTORNEY GENERAL

State of North Carolina
Department of Justice
P. O. Box 629
Raleigh
27602

23 October 1980

MEMO

TO: H. C. Rhudy, Manager of Traffic Engineering
W. Warrick, Jr., Area Traffic Engineer

FROM: Dan Oakley, Assistant Attorney General

RE: Proposed Cary Quarry

Attached is a copy of a letter you wrote to Mr. Alan Eakes, Department of Natural Resources and Community Development, concerning traffic volume at the Umstead Park as it may be affected by a proposed quarry.

The Department of Natural Resources and Community Development has denied a mining permit for the proposed quarry, with traffic being one consideration. The denial has been appealed to the Mining Commission, and the Department has agreed with the quarry operators that traffic safety will not be at issue.

However, Mr. Jim Kimzey, counsel to Wake Stone Corporation, has requested that you be available in Raleigh if at all possible on November 6 and 7, 1980 (hearing dates) in the event any questions are raised concerning your safety estimates. Please contact me at 733-5725 if these dates conflict with any out-of-town duties or responsibilities you have.

Thank you for your assistance.

cc: Jim Kimzey
Alan Eakes
~~Jim~~ Simons

/ck

December 11, 1980

MEMORANDUM

TO: File

FROM: James D. Simons

SUBJECT: Noise Monitoring at Contractors and Material's Quarry, Richmond County

On December 10, Joe Glass, Steve Cook, and Jim Simons stopped by the Contractors and Materials Quarry near Rockingham to measure noise levels. At the time, only two secondary crushers and a frontend loader were active. The pit, primary crusher, and heavy pit dump trucks were not active. The weather was overcast and approximately 50 degrees F. The quarry production capacity is approximately 500,000 tons per year.

Noise levels were measured at 1400 feet (location A) and 1700 feet (location B) as shown on attached orthophoto. Approximately 300 feet of trees were present between the location A and the two crushers and approximately 900 feet of vegetation at location B. Additionally, large stockpile areas partially blocked the noise.

The noise level readings taken were as follows:

Location A 53 Leq at 1400 feet 3:15 P.M. 12/10/80

Location B 45 Leq at 1700 feet 3:30 P.M. 12/10/80

JDS:pg

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF LAND RESOURCES
Stephen G. Conrad, Director
Box 27687, Raleigh 27611
Telephone 919 733-3833

February 10, 1981

Mr. John Bratton, Jr.
President
Wake Stone Corporation
P. O. Box 190
Knightdale, North Carolina 27545

Dear Mr. Bratton:

On February 5, 1981 representatives of your company and this division met in our office for preliminary discussions of the Mining Commission's decision of January 27, 1981 regarding your proposed Cary quarry. It was agreed that your company would prepare proposals for meeting the five conditions outlined in the Mining Commission's decision and that you would submit your proposals to this office, for our review, on or before February 18, 1981.

When we have received your proposals on how you would like to meet the Commission's conditions, we will review them internally and with other interested divisions of this department. We will make every effort to expedite the review process and will forward our response to you as soon as possible.

Please call if you have any questions.

Very truly yours,

Stephen G. Conrad

Stephen G. Conrad, Director

SGC:CHG:pg

RUFUS L. EDMISTEN
ATTORNEY GENERAL

State of North Carolina
Department of Justice
P. O. Box 629
Raleigh
27602

28 April 1981

MEMO

TO: Jim Simons

FROM: Dan Oakley

COMMENTS ON PERMIT

P. 3. First mention of park (2H) should probably specify "Wm B. Umstead State Park"

P. 4. Second buffer zone is confusing to me. Is this on west side?

You might consider word "also" after "shall" on line 1.

P. 6. Is there a screening requirement from I-40?

P. 9. Is 2D consistent with hearing, or should it specify that this does not include berming in the 10 year undisturbed area?

P. 3. #3 unconsolidated in two places

P. 10. #4 What about additional plantings for screening?

P. 10. #5 Omit "set forth in the reclamation plan" in line 3.

P. 10. I have some problems with the specifics of the donation being placed in document, since Administration and Council of State have a say.

P. 10. #5 If you agree with my conclusions about the donation I would suggest the following:

line 3 omit "and acceptance shall be set forth in the reclamation plan"

DIVISION OF PARKS AND RECREATION

May 11, 1981

MEMORANDUM

TO: Steve Conrad

FROM: Jim Stevens

SUBJECT: Recommended Changes to Draft Permit for Wake Stone Corporation

(1) p. 2, para. 5 - Rewrite Site Plan section to read:
The site plan referred to in this permit shall indicate the topographic site plan of the Wake Stone Corporation revised March 10, 1981, with the following exceptions:

1) The berm and associated disturbances located along the northern boundary shall not be constructed unless approved by the Department.

2) The dotted line labelled as buffer along the northern boundary and along the eastern boundary south to the 10 year buffer line shall be deleted.

(2) p. 4, para. 1, Line 1 - and para. 2, Line 1 - The following statement after "undisturbed buffer" and "undisturbed buffer zone" respectively:
... of existing natural vegetation ...

p. 4, para. 3 - Rewrite para. to read:
(3) The only exceptions to these undisturbed buffers of natural vegetation are:

(4) p. 4, Section C. - Delete this section. It is unnecessary and potentially harmful. The property owner has every right to post his property against wanderers. Any statement regarding removal of trees leaves the door open to potentially drastic changes in forest cover. This could lead to adverse effect on park.

(5) p. 4, para. 3, Section D - Accommodate misspelled

* p. 5, Section 5, H - Add Memorial Day — No

* p. 6, Section 8, A Line 6 - Change to read:
Building, commercial or institutional building, park picnic shelter or park trail. — not necessary, already covered by last sentence, park + trail not endangered by vibration

* p. 6, Section 8, B Line 4 - Change to read:
Church, school, public building, commercial or institutional building, park picnic shelter or park trail Do not believe shelter is endangered - but could be covered by "public building if needed

(6) p. 7, Section 9, Line 4 - Change to read:
taining undisturbed buffer areas of natural vegetation ....

(7) p. 7, Section 9, Construction of Berms Subsection C. Add the following sentence at end of subsection C:
The alignment of the berm may vary from the approved site plan as is necessary to provide the 50 feet of undisturbed land between the park boundary and the toe of the berm and assuring an acceptable angle of repose for the slope of the berm.

* p. 9, Reclamation Conditions, Section 1, Line 3 - Change to read:
A condition suitable for those wildlife populations that existed prior to site disturbances and for those types of outdoor recreation that are compatible with maintaining those populations. — Assumes that mined land can be restored to original condition - which is impossible for quarry

* p. 10, Section 3, Seedbed Preparation:
Some statement needs to be made here regarding protection against runoff into surrounding or adjacent watercourses. - already covered in cond. 4 p. 4

* p. 11, para. 2, Line 10 - Change to read:
Spacing will be 4' on center for revegetation purposes. - isn't 4'x4' the same

(9) p. 11, para. 6, Line 5 - Constituting instead of constitution.

(10) p. 12, para. 3, Line 1 - Rewrite to read:
The conveyance of the quarry site, if approved by the State, shall be ...

(11) p. 12, para. 5, Line 1 - Insert the word "may" for "will".

JSS,jr/ARE/cam

NORTH CAROLINA DEPARTMENT OF NATURAL
RESOURCES AND COMMUNITY DEVELOPMENT

Date 5/12 19 81

To: SGC

From: CHARLES

Remarks: I'VE MARKED WITH * POINTS IN THE PARKS MEMO WHICH JIM & I THINK WOULD BE BETTER LEFT UNCHANGED.

WITH YOUR APPROVAL, WE'LL GIVE THIS TO JOHN BRATTON AS DRAFT, PRIOR TO SIGNING.

ACTION

- ☐ Note and file
- ☐ Note and return to me
- ☐ Note and see me about this
- ☐ For your approval
- ☐ Per our conversation
- ☐ Per your request
- ☐ Return with more details
- ☐ Note, initial and forward
- ☐ Your comments, please
- ☐ For your information
- ☐ Prepare reply for my signature
- ☐ Prepare information for me to reply
- ☐ Please answer, with copy to me
- ☐ To be filed

IMPORTANT

To_____

Date_____ Time_____

WHILE YOU WERE OUT

M_____

of_____

Phone_____

AREA CODE NUMBER EXTENSION

TELEPHONED		PLEASE CALL	
CALLED TO SEE YOU		WILL CALL AGAIN	
WANTS TO SEE YOU		URGENT	
RETURNED YOUR CALL			

Message_____

_____

_____

_____

_____

Signed

N. C. Dept. of Natural Resources and Community Development

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Howard N. Lee, Secretary

DIVISION OF
LAND RESOURCES
Stephen G. Conrad, Director
Box 27687, Raleigh 27611
Telephone 919 733-3833

May 13, 1981

Mr. John Bratton, Jr.
Wake Stone Corporation
P. O. Box 190
Knightdale, North Carolina 27545

RE: Cary Quarry
Wake County

Dear Mr. Bratton:

The application for a mining permit for the Cary Quarry in Wake County has been found to meet the requirements of G.S. 74-51 of The Mining Act of 1971. Since your company already has a blanket bond on file sufficient to cover this application, I am enclosing the mining permit.

The conditions of the mining permit were based primarily upon information supplied in the application with conditions added as directed by the North Carolina Mining Commission necessary to insure compliance with The Mining Act of 1971 and to provide maximum possible protection to William B. Umstead State Park.

Please review the permit and notify this office of any objection or question concerning the terms of the permit.

Very truly yours,

Stephen G. Conrad

Stephen G. Conrad, Director

SGC:pg

cc: John Holley

DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

DIVISION OF LAND RESOURCES

LAND QUALITY SECTION

P E R M I T

for the operation of a mining activity

In accordance with the provisions of G. S. 74-46 through 68, "The Mining Act of 1971", Mining Permitting Regulation 15 N.C.A.C. 5B, and other applicable laws, rules and regulations

Permission is hereby granted to:

WAKE STONE CORPORATION , permittee

for the operation of a CRUSHED STONE QUARRY

entitled, CARY QUARRY , permit no. 92-10

and located in WAKE County, which shall provide that the usefulness, productivity and scenic values of all lands and waters affected by this mining operation will receive the greatest practical degree of protection and restoration.

In accordance with the application for this mining permit, which is hereby approved by the Department of Natural Resources and Community Development, hereinafter referred to as the Department, and in conformity with the approved Reclamation Plan attached to and incorporated as part of this permit, provisions must be made for the protection of the surrounding environment and for reclamation of the land and water affected by the permitted mining operation. This permit is expressly conditioned upon compliance with all the requirements of the approved Reclamation Plan. However, completed performance of the approved Reclamation Plan is a separable obligation, secured by the bond or other securities on file with the Department, and may survive the expiration, revocation or suspension of this permit.

This permit is not transferable by the permittee with the following exception: If another operator succeeds to the interest of the permittee in the permitted mining operation, by virtue of a sale, lease, assignment or otherwise, the Department may release the permittee from the duties imposed upon him by the conditions of his permit and by the Mining Act with reference to the permitted operation, and transfer the permit to the successor operator, provided that both operators have complied with the requirements of the Mining Act and that the successor operator agrees to assume the duties of the permittee with reference to reclamation of the affected land and posts a suitable bond or other security.

In the event that the Department determines that the permittee or permittee's successor is not complying with the Reclamation Plan or other terms and conditions of this permit, or is failing to achieve the purposes and requirements of the Mining Act, the Department may give the operator written notice of its intent to modify, revoke or suspend the permit, or its intent to modify the Reclamation Plan as incorporated in the permit. The operator shall have right to a hearing at a designated time and place on any proposed modification, revocation or suspension by the Department. Alternatively and in addition to the above, the Department may institute other enforcement procedures authorized by law.

Definitions

Wherever used or referred to in this permit, unless the context clearly indicates otherwise, terms shall have the same meaning as supplied by the Mining Act, N.C.G.S. 74-49.

Site Plan

The site plan referred to in this permit shall indicate the topographic site plan of the Wake Stone Corporation revised March 10, 1981, with the following exception:

> The berm and associated disturbances located along the northern boundary shall not be constructed unless approved by the Department.

Park

Whenever used or referred to in this permit, the term "park" shall mean the William B. Umstead State Park.

Conditions

The permitted mining operation shall not violate standards of air quality, surface water quality, or ground water quality promulgated by the Environmental Management Commission.

This permit shall be effective from the date of its issuance until May 13, 1991 and shall be subject to the provisions of the Mining Act, N.C.G.S. 74-46, et. seq., and to the following conditions and limitations:

1. Wastewater Control

   Any wastewater processing shall be in accordance with permit requirements and regulations promulgated by the Division of Environmental Management.

2. Dust Control

   Any mining process producing air contaminant emissions shall be subject to the permitting requirements and regulations promulgated by the Division of Environmental Management. The operator will take whatever reasonable precautions necessary to prevent or minimize the fugitive dust from going offsite. Such measures include but are not limited to:

   A. The access road to the quarry, from the scale house to SR 1790, shall be paved. Wake Stone Corporation shall cooperate with the Department of Transportation in paving SR 1790 from the entrance to the quarry to the intersection with SR 1654.

   B. The provisions of the air quality permit #4386 shall be followed.

   C. A water wagon with sprays shall be used for wetting roads to prevent dust.

   D. Sprays shall be used throughout the plant at transfer points to control dust.

   E. Drill hole dust shall be controlled by wetting or other means.

   F. Dust control at the crushers and screens shall be maintained by the use of water sprays.

   G. A water spray shall be provided for highway haul trucks.

   H. Washed stone shall be stockpiled within the part of the designated plant area which is closest to the park.

3. Buffer Zones

The dotted line labelled as buffer along the northern boundary and along the eastern boundary is the permanent buffer as designated by the Mining Commission. (Site plan dated March 10, 1981)

An undisturbed buffer of existing natural vegetation shall be maintained between the mining disturbance and Park property as indicated by the "10 year buffer" shown on the site plan dated March 10, 1981.

An undisturbed buffer zone of existing natural vegetation shall also be maintained between the top edge of the bank of Crabtree Creek and any mining disturbance within the 10 year permit area. The buffer zone shall be of sufficient width to prevent offsite sedimentation and to preserve the integrity of the natural watercourse. In any event, the buffer will meet U.S. Corps of Engineers requirements for Crabtree Creek Watershed.

The only exceptions to these undisturbed buffers of natural vegetation are:

A. The construction of berms as approved by the Department for visual and noise screening.

B. The installation of drainage and sedimentation controls to protect the Crabtree Creek.

C. Such crossings as may be necessary in future years to accommodate the installation of utilities.

4. Erosion and Sediment Control

A. Adequate mechanical barriers including but not limited to diversions, earthen dikes, brush barriers, silt check dams, silt retarding structures, rip rap pits, or ditches shall be provided in the initial stages of any land disturbance to prevent sediment from discharging onto adjacent surface areas or into any lake or natural watercourse in proximity to the affected land.

B. The existing lakes shall be used to trap sediment from initial mining disturbances. The spillways of the existing lakes shall be further stabilized as necessary to prevent erosion of the spillway from runoff from the affected lands. The embankments of the existing lakes shall be improved if necessary to insure the stability of the embankments.

C. The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control measures, structure, or device. In any event, exposed slopes or any excavated channels, the erosion of which may cause offsite damage due to siltation, shall be planted or otherwise provided with ground cover, devices or structures sufficient to restrain such erosion.

D. Drainage shall be provided either through or around any berms that would otherwise obstruct natural drainage.

5. Noise Abatement

All reasonable precautions shall be taken to minimize the impact of operational noise upon Umstead Park. Such measures shall include but not be limited to:

A. Noise barriers between the park boundary and the crushers and screening towers to minimize noise levels at the park shall be provided from the outset of the operation. Noise barriers may be enclosures, walls, bins, structures, stockpiles, or natural terrain. In the event there is disagreement over the required noise control measures, the final design and emplacement of noise barriers shall be determined by qualified noise and engineering consultants mutually agreed upon by both parties.

B. The plant shall be located at the lowest feasible elevation.

C. The plant shall be designed so that the primary crusher can be relocated in the pit at the earliest possible date.

D. The chutes used in processing shall be rubberized.

E. Compressors with noise abatement enclosures (currently called whisperized compressors) shall be used with track drills to open the quarry. Once the quarry is opened, either hydraulic or down-in-the-hole drills shall be used to further reduce noise.

F. Pit haul trucks shall be equipped to exhaust through the beds of the trucks to muffle engine noise.

G. Conveyors rather than trucks shall be used for stockpiling material.

H. The quarry and stone process operations shall be operated only on Monday through Friday and shall not be operated on the following recognized holidays: New Year's Day, Easter Monday, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day. A reasonable amount of hauling of processed

stone from the stockpile areas is permitted until 1:00 P.M. on Saturdays, but hauling shall not be done at any other time on weekends or on holidays without prior approval by the Department.

6. Processing Plant Location

A. The processing and stockpiling facilities shall be located as indicated on the Wake Stone Corporation site plan dated March 10, 1981.

B. The plant shall be located to place the processing and stockpiling facilities at the lowest possible elevation to reduce visibility and noise impact on the park.

C. The location of the pit shall be such that, once the overburden is removed, the quarry excavating equipment-i.e. compressor and drill, shovels, and trucks-can be placed at an elevation lower than the surrounding natural ground in the initial phases of quarrying.

7. Prevention of Stagnant Pools

The affected land shall be graded so as to prevent collection of pools of water that are, or are likely to become, noxious or foul. Necessary structures such as drainage ditches or conduits shall be constructed or installed when required to prevent such conditions.

8. Blasting

The following blasting conditions shall be observed by the operator to prevent hazard to persons and adjacent property from thrown rock or vibrations:

A. In all blasting operations, except as hereinafter otherwise provided, the maximum peak particle velocity of any component of ground motion shall not exceed 1 inch per second at the immediate location of any building regularly occupied by human beings such as dwelling house, church, school, public building, or commercial or institutional building. A smaller peak particle velocity may be required to protect neighboring structures or equipment vulnerable to vibrations less than 1 inch/second peak particle velocity.

B. Airblast overpressure shall not exceed 128 decibels linear (dBL)-"warning," 132 dBL "caution," and 135 dBL "maximum" as measured at the immediate location of any dwelling house, church, school, public building, or commercial or institutional building.

C. The operator shall take all reasonable precautions to insure that flyrock is not thrown beyond areas where the access is temporarily or permanently guarded by the operator. Should flyrock occur beyond the guarded area, it shall be reported to the Department immediately. The Department will conduct a thorough investigation to determine the cause. Failure to take corrective measures to prevent flyrock and repeated instances of flyrock shall be considered a violation of the permit.

D. Operator shall maintain records on each individual blast describing: the total number of holes; pattern of holes; depth of holes; total pounds of explosives; maximum pounds per delay interval; amount of stemming and burden for each hole; and blast location. Records shall be maintained at the permittee's mine office and copies shall be provided to the Department upon request.

9. Visual Screening

The operation shall be situated to optimize natural screening of the operation from public view from Interstate 40 and the Park property. The visual screening plan shall include maintaining undisturbed buffer areas of natural vegetation as shown on the site plan dated March 10, 1981. Additionally, a vegetated earthen berm shall be constructed east of the processing plant and stock-pile area as shown on the revised site plan. Visual screening such as vegetated earthen berms and/or evergreen trees shall be placed as necessary to supplement natural screening.

Construction of Berms

A. A vegetated earthen berm shall be constructed between the Wake Stone Corporation plant and the western boundary of the Park as shown on Wake Stone Corporation's site plan dated March 10, 1981.

B. Berm dimensions shall be no less than indicated on Wake Stone Corporation's site plan dated March 10, 1981 and may be higher and longer than shown.

C. The side slopes of the berm shall be graded to a stable grade or 2 horizontal to 1 vertical grade or flatter and revegetated on the sides and top with grasses and evergreen trees. The toe of the berm shall not encroach on the park property boundary and shall be at least 50 feet from the boundary. The alignment of the berm may vary from the approved site plan as is necessary to provide the 50 feet of undisturbed land between the park boundary and the toe of the berm and assuring an acceptable angle of repose for the slope of the berm.

D. Other berms may be required as mining progresses to reduce the noise and visual impact upon the park.

10. Highwall Barrier

A physical barrier consisting of a fence or boulder barriers, etc. shall be maintained around the perimeter of any quarry highwall.

11. Annual Report

An Annual Reclamation Report shall be submitted on a form supplied by the Department on February 1 of each year until reclamation is completed and approved.

12. Surety Bond

The security which was posted pursuant to N.C.G.S. 74-54 in the form of $25,000.00 Blanket Bond is sufficient to cover the crushed stone operation as indicated on the approved application. This security must remain in force for this permit to be valid. The total affected land shall not exceed the bonded acreage.

APPROVED RECLAMATION PLAN

The Mining Permit incorporates this Reclamation Plan, the performance of which is a condition on the continuing validity of that Mining Permit. Additionally, the Reclamation Plan is a separable obligation of the permittee, which continues beyond the term of the Mining Permit.

The approved plan provides:

Minimum Standards As Provided By G. S. 74-53

1. The final slopes in all excavations in soil, sand, gravel and other unconsolidated materials shall be at such an angle as to minimize the possibility of slides and be consistent with the future use of the land.

2. Provisions for safety to persons and to adjoining property must be provided in all excavations in rock.

3. All overburden and spoil shall be left in a configuration which is in accordance with accepted conservation practices and which is suitable for the proposed subsequent use of the land.

4. No small pools of water shall be allowed to collect or remain on the mined area that are, or are likely to become noxious, odious or foul.

5. The revegetation plan shall conform to accepted and recommended agronomic and reforestation practices as established by the N.C. Agricultural Experiment Station and the N.C. Forest Service.

6. Permittee shall conduct reclamation activities pursuant to the Reclamation Plan herein incorporated. These activities shall be conducted according to the time schedule included in the plan, which shall to the extent feasible provide reclamation simultaneous with mining operations and in any event, initiation of reclamation at the earliest practicable time after completion or termination of mining on any segment of the permit area and shall be completed within two years after completion or termination of mining.

RECLAMATION CONDITIONS

1. Provided further, and subject to the Reclamation Schedule, the reclamation shall be to restore the affected lands to a condition suitable for wildlife and recreation.

2. Specifications for reclamation shall be as follows:

   A. The process plant area shall be graded and smoothed.

   B. Any sideslopes in unconsolidated material shall be graded to a 2 horizontal to 1 vertical grade or flatter.

C. Suitable benches shall be left in the rock excavation to provide support where rock weakness could lead to collapse of high walls.

D. Overburden shall be used for site grading or berm construction at approved locations.

E. Settling ponds shall be drained and stabilized to prevent erosion.

F. Oil, grease, scrap metal, wood and other debris shall be removed from the surface and delivered to scrap dealers or landfilled in an approved manner.

G. Any diverted or re-established drainage channels shall be restored to a stable condition.

H. The affected land shall be graded to prevent the collection of noxious or foul water.

3. Revegetation Plan

All reclaimed areas in unconsolidated material shall be re-vegetated utilizing the following provisions:

Site Preparation: The ground will be graded and/or shaped where necessary keeping in mind the ultimate use of the site, but in no case will any slope greater than 26 degrees in unconsolidated material be left. Loose rock, woody material, and other obstruction that will interfere with the establishment of vegetation planned for the site will be removed and/or buried. Surface runoff that might concentrate to cause undesirable erosion will be controlled by terraces or diversions diverting water to protect outlets.

Lime and Fertilizer: Liming and/or fertilizer will be conducted in accordance with soil test results and as required for vegetation planned for the site.

Seedbed Preparation: Lime and fertilizer will be mixed with the soil to a depth of 3 to 4 inches where conventional equipment can be used. On slopes steeper than about 2:1, soils will be grooved or scarified along the contour to provide for retention of seeds and nutrients on the slope until germination and growth is started. On steep slopes not accessible to machinery, seed and nutrients will be applied by hand.

Vegetation: Sericea Lespedeza and/or Weeping lovegrass will be established on the site to provide ground cover and erosion control. When using Sericea Lespedeza, scarified seed will be applied when reclamation is conducted during spring months and unscarified seed will be used during the fall.

Application will be in a uniform manner either by machine or hand at the rate of 50 pounds of lovegrass, Lespedeza, or combination per acre. Seed will be covered to a depth of 1/8 to 1/4 inch and the soil then firmed with a cultipacker or similar equipment. Mulch consisting of dry, unchopped small grain straw or similar type material will be spread evenly over the surface at the rate of 1 to 2 tons per acre or until about 75 percent of the soil is hidden. Loblolly pine seedlings will be planted at selected sites to provide a view screen to provide revegetation. Spacing will be about 4' X 4' for revegetation purposes.

Maintenance: Plant replacement and other maintenance that may be required to establish vegetative cover appropriate to the reclamation plan for this site will be carried out until vegetation is properly established.

4. Reclamation Schedule

Some reclamation activities, particularly those relating to control of erosion, will be conducted simultaneously with mining activities. Diversion channels or terraces that may be required to control surface runoff on the property will be established and revegetated as soon as they are constructed. Portions of berms will be revegetated as completed. Final reclamation activities will be initiated at the earliest practicable time after completion or termination of mining on any segment of the permit area, and in all instances reclamation activities will be completed within two years after completion or termination of mining.

5. Donation to State

This provision is pursuant to Wake Stone Corporation's offer to donate the quarry site to the State as part of its reclamation plan.

The term, "quarry site," shall include the entire pit as it exists after quarrying has been completed, a strip extending at least 50 feet back from the top of the slope of the pit on all sides and a reasonable area to connect the pit and surrounding strip to the Park, constituting a total area of at least 75 acres.

During the option period, Wake Stone Corporation shall have the right to encumber all of its remaining property from time to time by mortgage, deed of trust or other security agreement then in common use for the purpose of securing one or more bona fide obligations of Wake Stone Corporation, such as the payment of money or the providing of any goods or services. The option to the State shall be subordinate to each such encumbrance in the same manner and to the same extent as if such option had been recorded after the recordation of each such encumbrance.

The right of the State to exercise its option shall be subject to:

A. Wake Stone Corporation not being prohibited by the U.S. Government, State of North Carolina, Wake County, any municipality having jurisdiction, or by any court from removing Wake Stone Corporation's property all quarryable stone which is outside the buffer zone referred to in condition 3, page 4. The requirements by the State that Wake Stone Corporation comply with laws and rules and regulations generally applicable to stone quarries shall not be deemed a prohibition of quarrying for the purpose of the option agreement.

B. The operation of a quarry on Wake Stone Corporation's property for a minimum period of five years.

The conveyance of the quarry site, if approved by the State, shall be by deed containing the usual covenants of warranty and conveying the quarry site free and clear of all encumbrances except those existing at the time of Wake Stone Corporation's purchase, ad valorem taxes at the time of conveyance (which shall be prorated), and such drainage and utility easements as shall have been installed in connection with the development of the property.

The option may include such other terms as are mutually acceptable to the State and Wake Stone Corporation.

The method by which the quarry site may be donated to the State is as follows: Upon acquisition of the land by Wake Stone Corporation (by the exercise of its options to purchase), Wake Stone Corporation will grant to the State an option which, if exercised by the State, will require that Wake Stone Corporation convey a fee simple title to the quarry site to the State. The State shall have no obligation to exercise its option to accept a conveyance of the quarry site.

The terms and conditions of the option shall be as follows:

A. When all quarryable stone has been removed from all of the land belonging to or under the control of Wake Stone Corporation during the period of its quarrying operations and which lies between the Park and Interstate Highway 40, it shall be the duty of Wake Stone Corporation to notify the State of this fact. Upon receipt of such notice, the State shall have six months within which it may elect to have Wake Stone Corporation convey the quarry site to the State. If the State elects to have Wake Stone Corporation convey the quarry site to the State, it shall notify Wake Stone Corporation of such election within said six month period. All notices shall be by certified mail with return receipt requested. If the State fails to make an election within said six month period or shall elect not to accept a conveyance of the quarry site, the option shall thereupon terminate and Wake Stone Corporation shall have no further obligation to convey the quarry site to the State.

B. If all quarryable stone is not removed, the right of the State to acquire the quarry site shall accrue at the end of 50 years from the date quarrying commences or 10 years after quarrying operations have ceased without having been resumed, whichever is sooner, and notices shall be exchanged at that time in the same manner and with the same time limitations as set forth in paragraph A above.

C. Until the option has expired Wake Stone Corporation will not encumber by mortgage or deed of trust any of the area designated "BUFFER AREA" on Wake Stone Corporation's site plan dated February 17, 1981, revised March 10, 1981, except for purchase money security interests.

The terms and conditions relating to the donation are placed herein to prescribe generally the boundaries of the Wake Stone Corporation offer. The acceptance by the State is subject to approval by the Department of Administration and the Council of State and the ascertaining that the offer is in accord with the laws of the State and lawful adopted rules and regulations. Further, the Department's analysis of the condition of the land to be transferred will be in accordance with the criteria identified in the "Principles Governing the Establishment Extension and Development of State Parks, State Recreation Areas and State Natural Areas."

Permit issued this the 13th day of May, 1981.

BY: Stephen G. Conrad

Stephen G. Conrad, Director
Division of Land Resources
By Authority of the Secretary
Of the Department of Natural Resources and Community Developm

Jim: This is the letter I wrote - you may have heard about it. If you question any of my statements throw please let me know. Flowanoy

2423 Wycliff
Raleigh, N.C.
May 20, 1981

The Honorable Betty Ann Knudsen
617 Macon Place
Raleigh, North Carolina 27609

Dear Betty Ann:

While I do not agree with the industrial zoning of the land between I-40 and Umstead Park or the use of that land for a quarry, I am writing about the pending Special Use Permit since it is the decision at hand.

Under North Carolina law, local governments can attach any reasonable condition to a Special Use Permit, regardless of whether that condition is specified in their zoning ordinance. The County's mining permit requirements are very broadly written and I hope the Board of Commissioners will take every advantage of this; to consider and attach conditions not included in the State's mining permit, but necessary to protect the public interest in the park and surrounding area.

The State's regulations are written to apply to all geographic regions of the State and principly to those concerns of statewide significance. It should be clearly understood that there are many considerations beyond the State's ability to address. The value of the County's regulations is in the fact that they provide an opportunity to address local issues or State weaknesses, rather than simply rubber stamping the State's action. The following are a series of my thoughts which point out a few of these issues.

1. The county has considerable interest in the site in question.
   a. A force main of the Crabtree sewer outfall is planned to cross the site parallel to I-40. The County should consider conditioning the Special Use Permit to require dedication of the needed right-of-way and the approved site plan should show its specific location so as to avoid disruption of future operations.
   b. Crabtree Flood Control Structure #25 proposes backing water up onto this site. The County should consider conditioning the Special Use Permit to require dedication (in fee simple) of all lands subject to inundation.

2. The County is making a considerable investment in the Crabtree Flood Control Structures. To protect the investment the County should consider requiring the operator to accept responsibility for damage to proposed structures #23 and #25 from blasting vibration as a condition of the Special Use Permit or otherwise secure guarantees that no damage is possible.

3. The County has Flood Hazard Area zoning requirements, whereas this is not a consideration at the State level. The flood hazard area, regulated by the county, should be clearly shown on the approved site plan and no encroachments on this area should be allowed.

4. Sediment control is a particularly thorny problem requiring legal interpretation. The State Sedimentation Pollution Control Act does not authorize counties to regulate projects licensed by the State, such as mining. Yet the Act goes on to exempt mining from its standards. Even though the State's mining permit includes a section on erosion and sediment control, you will note that it does not cite standards to which the operator will be held. That is because no legally binding standards have ever been adopted. The County should consider making approval of a sediment control plan based upon its standards a condition of the Special Use Permit, or otherwise try to get some kind of standard established.

5. The State mining permit addresses noise abatement, but does not attempt to limit blasting noise directly. It is technically possible to control such noise (in conjunction with blasting vibration) for it is done for quarries in major metropolitan areas. Such limits should be considered as conditions to the Special Use Permit in addition to those addressed in my next item.

6. The County Zoning Ordinance's Industrial Performance Standards are clear in that they measure all impacts at the property line of the subject use, and this is entirely proper. The State's mining permit allows for impacts to be measured at specified off-site locations. I feel that the State's approach endorses a taking of adjoining property owners rights. The County should consider reconfirming within the Special Use Permit that all impacts will be measured at the property line, and that the more restrictive of the State's/County's standards will apply.

7. The State's Approved Reclamation Plan notes that recreation is the intended active reclamation use. Further, it specifies lespedeza and lovegrass as reclamation vegetation, but unfortunately these are not suitable materials for recreation sites. These vegetation types are commonly used to stabilize disturbed sites, but they are incongrous with the approved reclamation use. The County should consider conditioning the Special Use Permit to require revegetation with rye/fesque and native shrubs compatible with the site and its intended use for passive recreation.

8. If you read the State's Approved Reclamation Plan section dealing with donation of the site to the State, you will note that about the only thing the State will get is the hole-in-the-doughnut. This is certainly a credit to the abilities of the applicants attorney, but I find it unthinkable that the public park should suffer with this questionable neighbor for many years and then inherit its pit. More restrictive conditions on the reclamation plan and donation should be considered as part of the Special Use Permit.

a. The donation should include all of the property, rather than just the pit and buffer.
b. To avoid having the site mined out in its entirity and thereby limiting its recreational value, a maximum minable area should be established (perhaps 50%) after which the site will be closed and donated.
c. The donation to the State is simply an offer, which must be approved by the Council of State, the county should have the right of second refusal to guarantee the public interest is served. All of these considerations were beyond the State's ability to consider because their permit only runs for ten years. These are life-of-project issues which can be considered in the context of Special Use Permit conditions running with the zoning, although they would require tough negoations.

9. Finally, you and the County Attorney should review item 5A of the Approved State Reclamation Plan. To me this says that if the operator is not allowed to take every bit of quarryable stone from the site, then the offer to donate to the State is void. If this is a true reading, then the County should consider initiating a new donation requirement as a condition of the Special Use Permit.

I hope you will share these ideas with other favorably minded Commissioners. This is not the first Special Use Permit for mining, but it is certainly the first real test. Special Use Permits should be thought of as special, rather than routine, and their conditions should be as innovative and restrictive as is called for in any given case. If this permit application cannot be denied on the same finding reached by the Division of Land Resources, Department of Natural Resources and Community Development, then I hope the type of consideration suggested in this letter will be undertaken.

Your constituent,

Bill Flournoy

William L. Flournoy, Jr.

bcc: Alan Eakes

July 22, 1980

MEMORANDUM

TO: Stephen G. Conrad

FROM: James D. Simons

SUBJECT: Potential Effect of Proposed Cary Quarry upon the National Natural Landmark area in Umstead State Park

Due to the disturbance from the proposed quarry site and topography, the proposed Cary Quarry will not have any effect upon the area indicated by the Department of the Interior.

The nearest boundary of the proposed operation area is approximately 8500 feet west of the area in question. Several hills and valleys lie between the two properties. Any quarry noise, dust, or visual impact would be non-existent at that distance. The only possible impact would be sedimentation of Crabtree Creek which forms the northwest boundary of the National Natural Landmark area. However, potential sedimentation of Crabtree Creek is already being evaluated.

Please advise if I can furnish additional information.

JDS:pg

July 17, 1980

MEMORANDUM

TO: Charles Gardner

FROM: Jim Simons

SUBJECT: Wake Stone Company Cary Quarry Application

I have made a detailed review of the Cary Quarry application with respect to G.S. 74-51. The complete evaluation is attached including a summary.

From the information submitted, our conversations with John Bratton and our experience with other quarries, I believe that with minor application revision or appropriate permit conditions the application is acceptable under the guidelines of G.S. 74-51 (1), (2), (3), (4), (6), and (7).

However, I feel that the proposed operation could have "significant adverse effect of the purposes of a publicly owned park," namely the area of the Reedy Creek Section adjacent to Crabtree Creek and nearest the proposed quarry site. I base this primarily on possible noise increase at the park.

If you agree with my evaluation, I recommend that we convey our concerns to Mr. Bratton at our 10:00 meeting, next Thursday, July 24.

JDS:pg

DEPARTMENT OF NATURAL RESOURCES AND
COMMUNITY DEVELOPMENT

OFFICE OF THE SECRETARY

TO: Steve Conrad DATE: 7-7-80

FROM: Lavonne Meads NO. 630-11

PLEASE:

___ Draft a reply for the Governor's signature and return to me.

✓ Prepare a reply for Secretary Lee's signature and return to me.

___ Reply, noting the letter was referred to you by Secretary Lee (with copy to Secretary Lee).

___ Read for your information.

___ Take appropriate action.

___ Recommend appropriate action.

___ Assign to someone for review and response.

___ Approve.

AND:

✓ Return the attached material to me.

___ Keep for your files.

REMARKS:

RECEIVED
JUL 7 '80
DIV. OF LAND RES.

RALEIGH, NORTH CAROLINA 27611 (919) 733-4984

1305 College Place
Raleigh, N.C. 27605
Dec. 14, 1981

Jim Simons, Mining Specialist
Division of Land Resources
Archdale Building, 512 N. Salisbury St.
Raleigh, N.C. 27601

RECEIVED
DEC 21 1981
LAND QUALITY SECTION

Dear Mr. Simons,

I would like to take this opportunity to thank you for the assistance you gave me in my recent research concerning the Wake Stone quarry site near Umstead Park. I appreciate the time and information with which you provided, and I also would like to thank you for the copy of the State mining act.

Sincerely,
Alison A. Pockat
Alison A. Pockat