

ACT 250 REVIEW GENERAL GUIDELINES

THE VERMONT GEOLOGICAL SURVEY

The Vermont Geological Survey (VGS) reviews projects proposed through the Act 250 process following the guidelines of Criteria 9D and 9E.

CRITERION 9D: "Earth Resources. A permit will be granted whenever it is demonstrated by the applicant, in addition to all other applicable criteria, that the development or subdivision of lands with high potential for extraction of mineral or earth resources will not prevent or significantly interfere with the subsequent extraction or processing of the mineral or earth resources."

When a project is proposed, VGS receives a request to determine if the proposed project has the potential to prevent or significantly interfere with any earth or mineral resource extraction. VGS staff must then locate the project on the state mineral resources maps and other available geologic data to ascertain if there is any possibility that a useable earth or mineral resource may be located where the project is proposed. If such a resource exists, the staff reviews the proposed project to determine if it is likely to interfere with the extraction of the potential resource. If there is a likelihood that the proposed project will prevent or significantly affect the extraction or processing of the material, then the staff notifies the applicant and the Agency of Natural Resources' land use attorney. If necessary, meetings are held to discuss possible solutions to the problem.

CRITERION 9E: "Extraction of Earth Resources. A permit will be granted for the extraction of processing of mineral and earth resources, including fissionable source material:

(1) when it is demonstrated by the applicant that, in addition to all other applicable criteria, the extraction or processing operation and the disposal of waste will not have an unduly harmful impact upon the environment or surrounding land uses and development; and

(2) upon approval by the district commission or the board of a site rehabilitation plan which insures that upon completion of the extracting or processing operation the site will be left by the applicant in a condition suited for an approved alternative use or development. A permit will not be granted for the recovery or extraction of mineral or earth resources from beneath natural water bodies or impoundments within the state, except that gravel, silt and sediment may be removed pursuant to the regulations of the water resources board, and natural gas and oil may be removed pursuant to the rules of the natural gas and oil resources board."

The Geological Survey reviews proposed mining operations under the guidance of Criterion 9E. The main thrust of this review is to assure an acceptable reclamation plan is proposed by the applicant.

Most of the reviews are of proposed sand and gravel pits. The general guidelines of the review for sand and gravel pits are as follows:

ACT 250 REVIEW GUIDELINES (continued)

- a. Topsoil Topsoil removed should be stockpiled and saved for the reclamation of the land. The topsoil stockpile(s) should be protected from erosion through seeding or some other method. There should be run-off control around the topsoil stockpile until the stockpile is stabilized. Whenever possible, enough topsoil should be saved to allow a minimum of four inches of topsoil in the reclaimed area.
- b. Seeding Seeding of the reclaimed area should be in accordance with the Watershed Management Construction General Permit erosion control handbooks.
- c. Operations The sand/gravel pit should not operate an area greater than five acres at one time. This is to insure that reclamation occurs before an area becomes too big to reclaim effectively. If the proposal is for a large area, the mining/extraction of the sand and gravel should occur in phases — e.g., extract sand or gravel from the first phase five acres, start extraction from the next phase five acres, while concurrently reclaiming the first phase five acres. This schedule of operations should continue throughout the life of the pit.
- d. Monitoring The plan should show how the reclamation will be monitored, and how remediation will occur if reclamation is not working.
- e. Slope The final slope of the pit should be no greater than 2:1.
- f. Run-off Run-off should be controlled during and after the operation of the pit. Wherever possible, the pit floor should be sloped into the working face, to allow water to infiltrate the ground, rather than running off and causing sediment problems.
- g. Depth The pit should not be deeper than three feet above the groundwater table.
- h. Isolation Distances The pit should be no less than: 25 feet from a Class 3 wetland; 50 feet from a Class 2 wetland; 100 feet from a Class 1 wetland; 50 feet from surface waters (except small, intermittent streams, drainageways, or swales, in which case the pit should keep a 25-foot isolation distance); and 25 feet from the property boundary.

The reviewer may coordinate the review of the proposed sand/gravel operation with other departments in the Agency.

The review of non-sand and gravel proposed mineral or earth resources extraction is generally site or type of mining specific. However, it is the reviewer's duty to help insure that there is an adequate reclamation process.

Note: Specifications such as a 2:1 final slope, and isolation distances such as 50 feet from a Class 2 wetland are taken from statute or from existing Agency practices.

GRAVEL AND QUARRY OPERATION PROCEDURES

The Environmental Board and the Agency of Natural Resources recommend that all applicants for gravel or quarrying operations include in their applications four general types of plans: (1) present site conditions; (2) operational plans; (3) reclamation plans; and (4) plans for the scope of work.

1. Present Site Conditions

On a topographic map, the applicant should identify:

- a. project location
- b. original land contours
- c. surface drainage features
- d. cultural and/or historic landmarks or features
- e. location of nearby public and private water supplies, including dug wells, springs, bedrock wells, lakes, ponds, streams and rivers
- f. relative position of the ground water table, if available from test drilling.

NOTES

The Agency recommends use of a US Geological Survey topographic map 7½ minute series with a scale of 1:24,000 or larger. Well data may be available from the Department of Environmental Conservation, or from a house-to-house canvass. The Agency notes that disturbance of a natural sand or gravel accumulation may seriously affect the ground water table of an area considerably larger than that being used. Sand or gravel deposits often serve as filter beds and recharge areas for bedrock wells in the area.

2. Operational Plans

- a. indicate any and all plans for phasing and staging development
- b. identify stockpile areas for stripped topsoil, debris (stumps, brush, etc.), size-screened products, and over-burden material
- c. include a detailed plan and narrative for erosion control and identify the location on the plans where the measures are to be used
- d. indicate plans for aesthetic quality control, such as plantings, dust fences, and other dust control measures
- e. locate on the site map test pits, sample drilling sites, and indicate the results of these test pits and borings.

NOTES

A well-planned and environmentally sound earth excavation development — whether it is a small sand and gravel operation or a large open-pit granite quarry — depends on its operation design or plan. Act 250's concerns relating to Criterion 1 — *Water and Air Pollution and Waste Disposal*, 1(G), *Wetlands*, 4, *Erosion Control*, 5, *Highway Access, Safety and Congestion*, 8, *Aesthetics and Impacts on Wildlife Habitat*, 9(B) and (C), *Agricultural and Forestry Soils*, and 9(E), *Extraction of Earth Resources and Reclamation Plans* — are especially important for these operations. Each of these criteria should be addressed and highlighted in the design, operational and reclamation plans.

GRAVEL AND QUARRY OPERATION PROCEDURES (continued)

3. Reclamation Plans

Show phased and final contours and alternatives for land use after reclamation. Identify the procedures to be followed for reclaiming the site.

NOTES

The Agency recommends the use of several maps, rather than including all the requested information on one large cluttered map.

4. Scope of Work Plans

Describe the intended scope of work and identify:

- a. proposed length of operation (whether year-round or seasonal)
- b. the planned size of operation (expected annual production)
- c. the number of daily truck trips expected
- d. whether crushing, screening or washing equipment will be on-site.

NOTES

Frequently, the intended size of an operation changes (for example, a greater gravel reserve is discovered, or greater demand for the resource has arisen). Expansions of projects may require amendments to the original land use permits. For the record, therefore, the Agency encourages applicants to identify their original intentions regarding the size and scope of mining, quarrying, and sand or gravel extractions.

For further information, the applicant should contact the Vermont State Geologist at (802) . The mailing address is Vermont Geological Survey, 1 National Life Dr., Davis 2, Montpelier, Vermont 05620.

SPECIFICATIONS FOR ROCK-BORROW, HIGHWAY AGGREGATE QUARRIES SUBJECT TO ACT 250 REVIEW

A. Rock Quarry Location

1. The quarry should be located topographically so that its orientation will blend with existing topography and will expose the least amount of bare quarry wall to the viewing public; and
2. The quarry should be located to take advantage of existing vegetation to screen the opening and quarry walls from the viewing public.

B. Quarry Design

1. The quarry should be designed with no lift greater than 30 feet high. For quarries that will be deeper than 30 feet, the quarry should be constructed with benches which are a minimum of 15' wide at intervals that will leave no lift greater than 30 feet high.
2. Unless the proposed alternative use for the quarry calls for water containment in the finished quarry, all designs should leave the quarry capable of free drainage.
3. Unless reclamation or alternative use plans require another design all quarry entries should be as narrow as possible so as to leave a "key" or "slot" that can be easily filled in or blocked to prevent easy entry after completion.
4. Design should include accommodations for stockpiling topsoil and overburden, and proper use or disposal of all trees and vegetation that are removed from the site.

C. Reclamation

1. Stockpiled topsoil and overburden should be returned to the quarry benches and quarry floor. Appropriate seedings and plantings should be made that will allow the quarry site to eventually blend with the indigenous vegetation.
2. Overburden and waste rock should be placed in the entry slot to discourage easy entry to the abandoned quarry. If necessary a drainage pipe should be placed at the base of this fill so as to provide drainage to the quarry.
3. Large quarry stone blocks should be spaced around the top crest perimeter of the quarry in an offset pattern with a maximum 10 foot spacing between blocks. Outside of these blocks at a distance of approximately 15' from the crest, chain link fence comparable to those specified by the Agency of Transportation for preventing access to an Interstate Highway shall be constructed.
4. The area shall be completely policed of trash, broken equipment, and all materials left over from the quarrying operation.
5. Roadways shall be graded, seeded, fertilized and mulched.

D. Suggested Alternative Uses

1. Continue as an operating, commercial quarry.
2. Storage area for highway equipment, covered salt/sand housing with concrete containment pad.
3. Recreation Use:
 - a. fishing pond, tennis courts, swimming pools, archery range or playing fields protected from wind (a limestone quarry in Burlington has been very successfully reclaimed as a private tennis and swimming club)
4. Community Use
 - a. concrete lined pumped water storage
 - b. commercial fuel oil storage tank with concrete base for ground water protection