

SURVEY OF HIGHWAY CONSTRUCTION MATERIALS  
IN THE TOWN OF MILTON, CHITTENDEN COUNTY, VERMONT

prepared by

Geologic Section, Materials Division  
Vermont Department of Highways

in cooperation with

United States Department of Commerce  
Bureau of Public Roads

Montpelier, Vermont

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### Acknowledgments

The work of this project was greatly implemented by the cooperation and assistance of many groups and individuals. The following were particularly helpful in carrying out the project's objectives:

1. Various departments and individuals of the Vermont State Department of Highways, notably the Planning and Mapping Division and the Highway Testing Laboratory.
2. Professor D. P. Stewart of Miami University, Oxford, Ohio.
3. Professor Charles G. Doll, Vermont State Geologist, University of Vermont, Burlington, Vermont.
4. The United States Department of Commerce, Bureau of Public Roads.

### History

The Materials Survey Project was formed in 1957 by the Vermont State Department of Highways with the assistance of the United States Bureau of Public Roads. Its prime objective was to compile an inventory of highway construction materials in the State of Vermont. Prior to the efforts of the personnel of the Survey as described in this and other reports, searches for highway construction materials were conducted only as the immediate situation required. Thus, only limited areas were surveyed and no over-all picture of material resources was available. Highway contractors or resident engineers are usually required to locate the materials for their respective projects and have samples tested by the Highway Testing Laboratory. The additional cost of exploration for construction material is passed on to the State in the form of higher construction costs. The Materials Survey

Project was established to minimize or eliminate this factor by enabling the State and its contractors to proceed with information on material sources available beforehand. Prior knowledge of locations of suitable material is an important factor in planning future highways.

The sources of construction materials are located by this Project through ground reconnaissance, study of maps and aerial photographs, and geological and physiographic interpretation. Maps, data sheets, and work sheets for reporting the findings of the Project were designed, keeping in mind their intended use. These maps and data sheets were devised to furnish information of particular use to the contractor or construction man. For maximum benefit, the maps, data sheets, and this report should be studied simultaneously.

#### Incllosures

Included in this folder are two surface-geology maps; one defining the location of tests conducted on bedrock sources, the other defining the location of tests conducted on granular materials. These maps are derived from 15 minute quadrangles of the United States Geological Survey enlarged to 1:31250 or 1" = 2604'. Delineated on the Bedrock Map are the various rock types of the area. This information was obtained from numerous sources; i.e., Vermont Geological Society Bulletins, Vermont State Geologist Reports, United States Geological Survey Bedrock Maps, Centennial Geological Map of Vermont, as well as other references.

The Granular Materials Map depicts areas covered by various types of glacial deposits (outwash, moraines, kames, kame terraces, etc.) by which potential sources of gravel and sand may be recognized. This information

was obtained primarily from a survey being conducted by Professor D. P. Stewart of Miami University, Oxford, Ohio, who, since 1956, has been mapping the glacial features of the State of Vermont during the summer months. Further information was obtained from the Soil Survey (Reconnaissance) of Vermont, conducted by the Bureau of Chemistry and Soils of the United States Department of Agriculture, and from Vermont Geological Survey Bulletins, United States Geological Survey Quadrangles, aerial photographs, and other sources. On both maps the areas tested are represented by Identification Numbers. Several tests are usually conducted in each area represented by an Identification Number, the number of such tests being more or less arbitrarily determined either by the character of the material tested or by the topography.

Also included in this folder are Data Sheets for both the Bedrock and Granular Materials Survey which contain detailed information for each test conducted by the Project as well as information obtained from other sources, including an active card file compiled by the Highway Testing Laboratory. It was readily apparent that the latter information was gathered over a period of years by many persons and consequently lacks the organized approach and detail required for effective use. The information in the cards varied widely in completeness. Transfer of information from the cards to the Data Sheets was made without elaboration or verification. The locations of the deposits listed in the card files have also been plotted on the maps. However, caution should be exercised wherever this information appears incomplete. Some cards in the file were not used because the information on the location of the deposit was incomplete or unidentifiable. This project does not assume responsibility for the information taken from the card files.

Work Sheets containing more detailed information of each test including a detailed sketch of each Identification Number Area are on file in the office headquarters of this Project, together with the respective Laboratory Reports.

#### Location

The Town of Milton is located in Chittenden County in the Champlain Valley, approximately 25 miles south of the northern boundary of the state. The Town is bounded on the north by Georgia, on the east by Westford, on the south by Colchester, and on the west by Lake Champlain. Although an area of fairly smooth relief, there are numerous hills and ridges. In the north-central portion of the town, Arrowhead Mountain rises to a height of 840 feet. The land is drained by the Lamoyille River and numerous streams emptying into Lake Champlain. There are four swampy areas in the town, one east of Cobble Hill, one west of Arrowhead Mountain, one south of West Milton, another at the Sandbar Wildlife Refuge.

#### Procedure for Rock Survey

The routine employed by the Project in the survey of possible sources of rock for highway construction is divided into two main stages; the office investigation and field investigation. The first is conducted primarily during the winter months and comprises the mapping of rock types as indicated in various reference sources. Many different sources of information were utilized, as indicated in the Bibliography. These references differ considerably in dependability due to new developments and studies contributing to the obsolescence of a number of reports. In addition, the results of samples taken by other individuals are analyzed and the location in which these

samples were taken is mapped when possible. In other words, as complete a correlation as possible is made of all the information available concerning the geology of the area under consideration.

The second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area. The information obtained in this survey, together with the information assimilated in the first stage of the investigation is employed to determine the areas in which the testing and sampling will be concentrated. When a promising source is encountered as determined not only by rock type but also by volume accessibility and the existence of a good working face, chip samples are taken with a hammer and submitted to the Highway Testing Laboratory for testing by the Deval Method (AASHO, T-3). It is kept in mind that samples taken by the chip method are often in the weathered zone of the outcrop and consequently may show a less satisfactory test result than the fresh material deeper in the body of the rock structure. When deemed necessary, further samples are taken by drilling to a depth of approximately 3 feet and blasting across the strike or trend of the outcrop. When the material is uniform, and satisfactory tests result from the chip samples, no further drilling, blasting, or sampling is done and the material source is included as being satisfactory.

#### Discussion of Rock and Rock Sources

It will be observed that the information on the surface-geology bedrock map in regard to rock type is simplified. For a more detailed description of the respective rock formations, a summary is included in this report. It is apparent from this summary that each formation may not be composed of one distinct rock type, but may be a complex mixture of rock types blending into one another. For this reason, the data sheets may describe the rock tested as differing from the designation on the map.

In general, the area included in this report is comprised chiefly of dolomites interbedded with quartzites, slate, limestone, and shale. The strike is generally north and south. Occasionally, a formation which appears in the western section of the town will reappear to the east suggesting a synclinal structure with a north-south axis.

No tests were made in the areas denoted as shale, slate and schist since, by observation, these rock types proved to be too soft or otherwise unsatisfactory for use as highway construction material. No tests were made in the large area of quartzite in the eastern section of the town, as the outcrops in this area proved inaccessible.

#### Procedure for Sand and Gravel Survey

The method employed by the Project in the survey of possible sources of sand and gravel for highway construction is divided into two main stages; office investigation and field investigation. The office investigation is conducted primarily during the winter months and comprises the mapping of possible potentially productive areas as indicated from various references. Of these references, the survey of glacial deposits mapped by Professor Stewart proves to be valuable, particularly when used in conjunction with other references such as soil type maps, aerial photographs and United States Geological Survey quadrangles. The last two are used in recognizing and locating physiographic features indicating glacial deposits, and in studying drainage patterns. In addition, the location of existing pits, when known, are mapped. The locations in which samples were taken by other individuals are noted and mapped, when possible.

The second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area noting areas which show

physiographic features giving evidence of glacial or fluvial deposits. These locations are later examined by digging test pits with a backhoe at a depth of approximately 11 feet and again sampling the material. The samples are submitted to the Highway Testing Laboratory where they are tested for gradation and stone wear, the latter by the Deval Method (AASHO T-4-35).

#### Discussion of Sand and Gravel Deposits

The granular deposits of the Town of Milton consist generally of sand, occurring principally in the central and western portions of the town. One large sand area, the result of a delta deposit, occurs in the extreme southwestern portion of the town adjacent to the mouth of the Lamoille River and is represented by Identification Numbers 9-13. A very large sand area is found between the bluffs along the lakeshore and Arrowhead Mountain and reaching southward across the Lamoille River.

The gravel areas are located generally at the lower elevations of the rough terrain to the east, although a few small gravel deposits may be found scattered throughout the area.



Summary of Rock Formation in the Town of Milton

Beldens Formation - interbedded buff to brown heavily-scored dolomite and white to blue-gray marble and limestone.

Cheshire Formation - very massive white to faintly pink or buff vitreous quartzite.

Clarendon Springs Formation - fairly uniform, massive smooth-weathered gray dolomite characterized by numerous geodes and knots of white quartz; quartz sandstone and irregular masses of chert are near the top.

Danby Formation - interbedded quartzite and dolomite; white quartzite beds more than one foot thick separated by ten to twelve feet of dolomite in eastern areas, increase westward to continuous sections of white to pink weathered, massively-bedded Potsdam quartzite.

Dunham Formation - buff weathered siliceous dolomite pink and cream mottled or buff to gray on fresh surface. Lower part massive, upper sandy and resembles the Winooski Dolomite.

Fairfield Pond Formation - greenish quartzite schist, locally purple or red. Contains quartz sericite, albite chlorite, biotite.

Iberville Formation - noncalcareous black shale with occasional dolomite beds and in the lower part with calcareous shale.

Monkton Formation - distinctively red quartzite interbedded with lesser buff and white quartzite and relatively thick sections of dolomite like that of the Winooski; the quartzites thin to the east, and they become gray and phyllitic to the east and south.

Rockledge Formation - phenoclasts chiefly of biohermal limestone in a matrix of gray limestone containing frosted quartz sand grains.

Rugg Brook Formation - sandy gray dolomite, dolomite conglomerate, and interbeds of gray weathered sandstone.

Winooski Formation - buff weathered pink, buff, and gray dolomite; beds four inches to one foot thick separated by thin, protruding, red, pink, green, and black siliceous partings.

### Glossary of Selected Geologic Terms

Alluvial - Pertaining to material carried or laid down by running water.

Bioherm - An organic reef.

Breccia - A rock consisting of consolidated angular rock fragments larger than sand grains.

Calcareous - Consisting of or containing calcium carbonate. As combined with rock names indicates a considerable proportion, say 50 percent, of calcium carbonate together with an equal or predominant amount of the material indicated by the rock name.

Delta - A predominantly alluvial deposit built out by a stream into the sea or other body of water. Usually having the typical form of the Greek letter delta.

Dip - The angle which a stratum, sheet, vein, fissure or similar geological feature makes with a horizontal plane, as measured in a plane normal to the strike.

Dolomite - As used in this report it applies to rocks approximating the mineral dolomite in composition or consisting predominantly of the mineral dolomite. Mineralogically, dolomite is a mineral of definite chemical composition,  $\text{Ca Mg}(\text{CO}_3)_2$ ; carbon dioxide 47.7, lime 30.4, and magnesia 21.9 percent.

Drift - Rock material of any sort deposited in one place after having been moved from another; as river drift. Specif., a deposit of earth, sand, gravel, and boulders, transported by glaciers (glacial drift) or by running water emanating from glaciers (fluvio-glacial drift) and distributed chiefly over large portions of North America and Europe, esp. in the higher latitudes.

Dune - A heap of sand or other material accumulated by wind. The outward form may be that of a hill or a ridge.

Fluvial - Pertaining to streams or stream action.

Geode - As applied in this report, a rock cavity lined with crystals that are not separable from the surrounding rock.

Gneiss - A term originally applied to a more or less banded metamorphic rock with the mineral composition of granite. As now employed it designates a foliated metamorphic rock with no specific composition implied, but having layers that are mineralogically unlike and consisting of interlocking mineral particles that are mostly large enough to be visible to the eye. Usually gneiss displays an alteration of granular minerals and tabular or schistose minerals with the rock, tending to split along the planes where tabular or schistose minerals predominate.

Kame - A conical hill of stratified drift, deposited at a glacial terminus by glacial streams flowing in or on the ice.

Kame Terrace - An accumulation of stratified drift laid down chiefly by streams between a glacier and an adjacent valley wall.

Lacustrine - Pertaining to lakes.

Limestone - A bedded sedimentary deposit consisting chiefly of calcium carbonate. The most important and widely distributed of the carbonate rocks. The percentage of calcium carbonate ranges from 40 percent to more than 98 percent. Common impurities are clay and sand.

Marine Deposits - Sedimentary deposits laid down in the sea.

Megascopic - Characters of a material that can be perceived by the unaided eye.

Metamorphic Rocks - Rocks that owe their distinctive characters to the transformation of pre-existing rocks, either through intense heat or pressure or both.

Moraine - An accumulation of drift with an initial topographic expression of its own built within a glaciated region chiefly by the direct action of glacier ice.

Normal - Perpendicular to a surface.

Outwash - Stratified drift that is stream built beyond the glacier; laid down by meltwater streams issuing from the face of the glacier ice.

Pleistocene - The first epoch of the Quaternary period, in general including the time and deposits of the last great glacial epoch, marked by repeated glacial advances and world-wide fluctuations of the sea level.

Quartzite - A firm, compact rock composed of grains of quartz so firmly united that fracture takes place across the grains instead of around them. A metamorphosed sandstone.

Schist - A crystalline rock with a secondary foliation or lamination based on parallelism of platy or needle-like grains. The name refers to the tendency to split along the foliation.

Schistosity - The property of a foliated rock by which it can be split into thin layers or flakes. The property of splitting may be due to alternating layers of differing mineral composition or to preferred orientation and parallelism of cleavage planes of the mineral.

Siliceous - Containing or pertaining to silica (Silicon dioxide,  $\text{SiO}_2$ ) or partaking of its nature.

Slate - A homogeneous, metamorphic rock, so fine-grained that no mineral grains can be seen. Slate splits with a foliation so perfect that it yields slabs having plane smooth surfaces.

Strike - The direction of a line formed by the intersection of a stratum with a horizontal plane.

Surface-Geology Map - A map showing areas of outcrop of geologic formations, both consolidated rocks and the unconsolidated sediments. Its scale is large enough that pits and quarries can be accurately shown and indexed.

Synclinal - Formed by strata dipping toward a common line or plane.

Terrace - A plain, natural or artificial, from which the surface descends on one side and ascends on the other. Terraces are commonly long and narrow, and they border seas, lakes, or interior valleys. A terrace may be built by deposition of sediment from water, it may be cut by the breaking of waves on a shore or the sweeping of currents, or it may be formed by the dislocation of rocks in crustal movements. The descent from river terraces toward the river may be very abrupt, especially in arid regions, the ascent on the other side may be only that of an extensive alluvial slope.

Till - Unsorted drift, or the mixture of rock fragments and fine materials left by melting glaciers.

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## MILTON GRANULAR DATA SHEET NO. 1

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
1	1	1960	--	0-0.5	Yes	Depleted	--	Not	Sampled		--	--	--	Owner: Herb Everest. Test #1 taken in an old beach deposit laid against the bedrock wall of the valley. Shallow pit with many stones over 6". Material was soft stones & dirt, also beach sand intermixed with shells partially cemented; material depleted.
	2	1960	1.5-4.5	0-1.5	No		--	Not	Sampled		--	--	--	Test #2 0-1.5' overburden; 1.5-3.0' dirty, poorly sorted gravel, soft stones; 3.0-4.5' till (clay & stones). Neither test was sampled.
2	1	1960	0.5-3	0-0.5	Yes		--	32.9	5.0	3.75	2	28.6	Gran. Borrow (Grav.)	Owner: Burt Patton. Test #1 was taken in an old pit east of drive. Material was gravel & sand. Rej. for Item 201A on percent of wear; ok for granular borrow.
	2	1960	1-9	0-1	Yes		--	14.9	3.0	2.0	1	45.0	Gran. Borrow (Grav.)	Test #2 taken north of Test #1 in SE face of pit. Material was poor gravel with clay bottom. Rej. for Item 201A on percent of wear; ok for granular borrow.

## MILTON GRANULAR DATA SHEET NO. 2

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	3	1960	0.5-5	0-0.5	No		--	34.9	4.0	1.0	1 1/2	19.6	Gravel	Test #3 was taken in cut at side of new road by camps. Material was very limited in area, acceptable for sub-base of gravel and granular borrow.
3	1	1960	0.5-8	0-0.5	Yes		--	31.3	5.0	2.8	1 1/2	19.0	Gravel	Owner: Herb Everest. Test #1 taken in old pit behind barn. Ledge & clay at 8'. Very limited amount; passes for sub-base of gravel & granular borrow.
4	1	1960	0.5-9	0-0.5	Yes		100	92.9	4.5	0.9	1	--	Sand	Owner: C. Orlow Sanderson. Test #1 taken in east face of pit; pit is small, used for dumping area now. Material had alternate layers of fine, medium & coarse sands, acceptable for Items 202 & 102A.
5	1A	1960	10-18	0-3	Yes		100	100	53.0	13.0	1	--	--	Owner: (Van Everest) Town pit. Test #1 was taken in east face of pit. 3-10' was not sampled (same material as sample). Material was alternate bands of fine sand & silt.

## MILTON GRANULAR DATA SHEET NO. 3

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	B	1960	10-18	0-3	Yes		100	100	53.0	13.0	1	--	--	Sample was taken twice from same place as a check, thus making two samples (1A & 1B). Material rej. for Items 202 & 102A.
6	1	1960	0-3	0	No		100	100	31.0	7.5	2	--	Gran. Borrow (Sand)	Owner: Rene Berard. Test #1 taken in blow sand area, quite extensive. Material was fine sand, rej. for sub-base of sand; ok for gran. borrow.
7	1	1960	0.5-5	0-0.5	No		100	96.9	13.5	2.0	3½	--	Sand	Owner: Rene Berard. Test #1 taken off private road, south of Berard tenant farm buildings. This was an extensive area; in some areas there is no overburden. Material was sand; passes for sub-base of sand & gran. borrow.
8	1	1960	0.5-3	0-0.5	No		100	60.7	1.2	0.3	3	--	Gran. Borrow (Sand)	Owner: Town ROW. Test #1 taken at top of bank in road cut. Sample represents an extensive area in the town. Material was gravelly sand, rej. for Item 202 (too coarse) ok for gran. borrow.



## MILTON GRANULAR DATA SHEET NO. 4

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
9	1	1960	1-5	0-1	No		100	99.5	13.9	1.0	1½	--	Sand	Owner: Vt. Fish and Game (Water Fowl Area). This was an extensive area of sand, approximately 600' from US Rte. 2 across road from old quarry. Test #1 surrounded by scrub growth. Material was sand; passes for Items 202 & 102A.
10	1	1960	0.5-4.5	0-0.5	Yes		100	98.1	12.7	1.3	2	--	Sand	Owner: Vt. Fish and Game (Water Fowl Area). Test #1 taken at top of east face of northernmost pit. Coarse sand on floor of pit may be transported. Approximately ¼ mile from Fish & Game garage. Material is sand, passes for Items 202 & 102A.
11	1	1960	1.5-8	0-1.5	No		100	89.2	4.4	0.6	3	--	Sand	Owner: Mullen "The Cove". Test #1 taken in bulldozer trench 50' east of US Rte. 2 150' north of fishing access road. Material was sand; passed for Items 202 & 102A.
12	1	1960	0.5-5	0-0.5	Yes		100	97.0	5.8	0.1	1	--	Sand	Owner: Vt. Fish & Game Refuge. Test #1 taken

## MILTON GRANULAR DATA SHEET NO. 5

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
														east of US Rte. 2 north of McDonald sand pits and the town road. Material was sand, passes for Items 202 & 102A.
13	1	1960	0.5-30	0-0.5	Yes		100	99.6	50	11.0	1	--	--	Owner: H. W. McDonald. Test #1 taken in south edge of pit behind house and barn. Material was sand, with bands of silt, rej. for Items 202 & 102A (too fine).
14	1	1960	0.5-5	0-0.5	Yes		100	92.8	3.5	0.5	2	--	Sand	Owner: K. McDonald. Test #1 taken in sand pit across town road from old abandoned house (McDonald's). Fairly extensive area of sand; passed for Items 202 & 102A.
15	1	1960	0.5-4.5	0-0.5	No		100	85.0	3.5	0.4	3	--	Sand	Owner: Town ROW. Test #1 was taken close to junction of road to US Rte. 7 & road to West Milton. Material was pebbly sand, part of an extensive sand area; passes for Items 202 & 102A.
16	1	1960	1-3	0-1	No		100	83.0	8.3	1.6	2½	--	Gran. Borrow (Sand)	Owner: Town Road ROW. Test #1 taken in a cut

## MILTON GRANULAR DATA SHEET NO. 6

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
														on the town road connecting US Rte. 7 at the Colchester town line with West Milton. Area is very extensive. Material is coarse sand, rej. for Item 202; ok for gran. borrow.
17	1	1960	0.5-8	0-0.5	Yes		100	93.8	3.6	0.3	2	--	Sand	Owner: P. Gonyeau. Test #1 taken in south face of pit. Pit has 10' face. 2' below floor of pit is fine sand with silt layer. Pit is only part of a very extensive sand area. Passes for Items 202 & 102A.
18	1	1960	1-6.5	0-1	Yes		100	94.5	6.3	0.1	1	--	Sand	Owner: Bushey. Test #1 taken in south face of small, shallow pit now used as a dump. Area Nos. 10, 11, 12, 15 & 16 are all in this same general sand area. Material passes for sub-base of sand & gran. borrow.
19	1	1960	0-2	0	No		100	100	19.0	0.8	2½	--	Gran. Borrow (Sand)	Owner: Bob Tracy. Test #1 taken just south of town road in large

## MILTON GRANULAR DATA SHEET NO. 7

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
						1								blow sand area. Material rej. for sub-base of sand, had 19% passing #100 screen, max. allowed is 15%. Material acceptable for gran. borrow.
20	1	1960	1-6	0-1	Yes		---	Not	Sampled	---	---	--	--	Owner: John Stuart. These tests were made by Road Commissioner. No samples were taken by the Materials Survey unit. Material is poorly stratified sand with stones, silt & clay. Limited quantity Test Nos. 1 & 2 were taken on west side of road, Test Nos. 3 & 4 on east side. Silt & clay in bottom.
	2	1960	1-5	0-1	Yes		---	Not	Sampled	---	---	--	--	
	3	1960	1-3	0-1	Yes		---	Not	Sampled	---	---	--	--	
	4	1960	--	0-3	Yes		---	Not	Sampled	---	---	--	--	
21	1	1960	6-12.5	0-6	Yes		--	53.0	2.0	0.5	1	28.2	Gran. Borrow (Grav.)	Owner: John Stuart. Test #1 was taken in SW face of pit. Material was dirty gravel, rej. on gradation for sub-base of gravel. Test #2 was taken in floor of pit. Material was stones with fine sand in layers; rej. for sub-base of gravel on gradation.
	2	1960	14-20	0-14	Yes		--	29.3	19.0	3.0	1	20.6	Gran. Borrow (Grav.)	

## MILTON GRANULAR DATA SHEET NO. 8

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	3	1960	5-10.5	0-5	No		100	94.3	2.8	0.2	1	--	Sand	Test #3 taken 50' south of pit. Material was sand, passes for sub-base of sand & granular borrow.
	4	1960	1-6	0-1	No		100	90.1	7.2	1.0	1	--	Sand	Test #4 taken 400' SW of Test #3, 40' east of cemetery. Material was sand with stone, grading to coarse sand with stone; passes for Items 202 & 102A.
22	1	1960	6-12.5	0-6	Yes		--	53.0	2.0	0.5	1	28.2	Gran. Borrow (Sand)	Owner: Leon Limage. Test #1 taken in north face of pit. 0-1' overburden; 1-3' dirty gravel; 3-5' coarse pebbly sand; 5-21' alternate layers of sand, fine silty sand & stones. Material rejected for Item 202; ok for 102A.
23	1	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	Owner: John E. Rogers. Tests were taken in a very small field. Test #1 was taken in NW corner 25' from north edge of field, 35' from west edge. Material was fine silt & stone, not sampled.

## MILTON GRANULAR DATA SHEET NO. 9

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-7	0-1	No		--	39.8	10.0	2.0	2	26.8	Gran. Borrow (Grav.)	Test #2 taken 100' south of Test #1. Material was dirty gravel with ledge at 7'. Rej. on percent of wear for Item 201; ok for Item 102A.
	3	1960	0.5-7	0-0.5	No		100	85.7	16.3	1.6	1	--	Gran. Borrow (Sand)	Test #3 taken 150' south of Test #2, 30' from west edge of field. 0-0.5' overburden; 0.5-2.5' gravel; 2.5-7' fine sand. Rej. for Item 202; ok for Item 102A.
24	1	1960	1-3	0-1	No		--	37.3	8.0	4.3	3½	19.2	Gravel	Owner: John Duffy. Test #1 taken in pasture east of house, 50' from large elm, 75' from gate. Material was bouldery gravel with a loamy matrix over clay till (dense & hard). 1-3' sampled. Material acceptable for Items 201 and 102A.
25	1	1960	1-5.5	0-1	No		--	Not	Sampled		--	--	--	Owner: Vernon Duffy. Test #1 taken 100' from Devino prop. fence & 20' from top of bank. Material was till, not sampled.

## MILTON GRANULAR DATA SHEET NO. 10

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-3	0-1	No		--	Not	Sampled		--	--	--	Test #2 taken along east edge of bank. Till at 2', not sampled.
26	1	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	Owner: Allyn C. Devino This is an extensive area. Test #1 taken 130' NE of barn. Material was clay & silt, not sampled.
	2	1960	1.5-7	0-1.5	No		--	70.3	6.0	1.3	2	--	Gran. Borrow (Grav.)	Test #2 taken in field across road, 100' from road, 200' from north edge of field. Material was dirty, fine gravel to fine sand & silt at 7'. Rej. for Item 201; ok for Item 102A.
	3	1960	1-6	0-1	No		--	33.9	5.0	1.5	3	28.4	Gran. Borrow (Grav.)	Test #3 taken 300' east of Test #2, 25' south of north edge of field. Material was dirty gravel & sand, rej. for Item 201, ok for Item 102A.
	4	1960	1-4	0-1	No		--	Not	Sampled		--	--	--	Test #4 taken on higher ground, east of Test #3. Material was till, not sampled.
	5	1960	1-5	0-1	No		100	88.7	10.6	2	3	--	Sand	Test #5 taken SE of Test #2 120' from road, 150' north of south edge of field. Material was sand, with

## MILTON GRANULAR DATA SHEET NO. 11

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	6	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	clay at 5'; passes for Items 202 & 102A. Test Nos. 6, 7, & 8 taken east of Test #5 in same field. Material was clay, till & stones, with ledge bottom, not sampled. Test Nos. 9 thru 12 were taken in field SE from barn. Material was till, with loosely packed stones; not sampled. Test Nos. 13 and 14 were taken south of previous tests along Town Road. Test #13 was taken 50' from road, material was till, not sampled. Test #14 was taken 70' from road, 115' NE of C.V.P.C. pole #46. Material was sand, rej. for Item 202; ok for Item 102A.
	7	1960	1-5.5	0-1	No		--	Not	Sampled		--	--	--	
	8	1960	1-6	0-1	No		--	Not	Sampled		--	--	--	
	9	1960	1-3	0-1	No		--	Not	Sampled		--	--	--	
	10	1960	1-6	0-1	No		--	Not	Sampled		--	--	--	
	11	1960	1-6.5	0-1	No		--	Not	Sampled		--	--	--	
	12	1960	1-6.5	0-1	No		--	Not	Sampled		--	--	--	
	13	1960	1-6.5	0-1	No		--	Not	Sampled		--	--	--	
	14	1960	1-10	0-2	No		100	99.2	23.0	3.0	3	--	Gran. Borrow (Sand)	
27	1	1960	0.5-3	0-0.5	Yes		100	100	29.0	6.0	1½	--	Gran. Borrow (Sand)	Owner: A. Desranleau. Test #1 taken in west face of small pit at top of knoll. Material extends beyond pit (south & west), 200-300'. Material was fine sand, rej. for Item 202; ok for Item 102A.



## MILTON GRANULAR DATA SHEET NO. 12

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
28	1	1960	0-3	0	No		100	99.5	17.8	1.0	2½	--	Gran. Borrow (Sand)	Owner: Mrs. Kingsbury. This is a large area of blow sand. Test #1 taken midway between brook & ledge outcrop, silt at 8' depth. Material rej. for Item 202, acceptable for Item 102A.
29	1	1960	0.5-4	0-0.5	No		--	25.0	11.0	5.0	3½	21.2	Gravel	Owner: Alvah Wilcox. Test #1 taken 165' north of a large butternut tree adjoining Martell property. Area limited because of proximity of wet terrain, & low relief. Material passes for Items 201 & 102A.
30	1	1960	0.5-4	0-0.5	No		--	35.7	15.0	5.0	2½	18.2	Gravel	Owner: Pete Martell. Test #1 taken in trench dug for water pipe in old orchard pasture 50' south of 18" butternut tree. Material was dirty, poorly sorted; passes for Items 201 & 102A.
	2	1960	0.5-3.5	0-0.5	No		--	24.8	14.0	5.0	3½	14.0	Gravel	Test #2 taken 15' west of same tree. Material same as Test #1; passes for Items 201 & 102A.

## MILTON GRANULAR DATA SHEET NO. 13

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
31	1	1960	0-20	0	Yes		100	99.6	18.9	1.0	1	--	Gran. Borrow (Sand)	Owner: A. C. Hewey. This is an extensive area used for many years as a source of sand. Test #1 taken between power line & telephone line by bend in road. Material rej. for Item 202 (too fine); ok for granular borrow
32	1	1960	1.5-10.5	0-1.5	No		100	90.2	27.1	7.6	2½	--	Gran. Borrow (Sand)	Owner: Alvah Wilcox. Test #1 taken on knoll in pasture (at west end). Material rej. for Item 202 (too fine); ok for Item 102A.
	2A	1960	1-4	0-1	No		--	24.4	25.0	6.5	4½	12.8	Gran. Borrow (Grav.)	Test #2 taken 75' NE of Test #1, 75' SW of 30" cherry tree. 0-1' overburden; 1-4' gravel; 4-10' sand. Material (1-4') rej. for sub-base of gravel; ok for granular borrow.
	B	1960	4-10	0-4	No		100	93.5	50.5	6.0	2½	--	Gran. Borrow (Sand)	4-10' (Test #2B) rej. for sub-base of sand; ok for granular borrow
33	1	1960	2.5-10	0-1	No		100	97.3	28.2	0.6	2	--	Gran. Borrow (Sand)	Owner: Alvah Wilcox. Test #1 taken in knoll just south of brook in pasture. Material rej. for Item 202 on gradation; ok for Item 102A.

## MILTON GRANULAR DATA SHEET NO. 14

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	0.5-8	0-0.5	No		--	31.1	3.0	1.5	3½	--	--	Test #2 taken 30' from clump of maples (to the north) by a brook. Material met grading requirements for Items 201 & 102A, but there wasn't a large enough sample for percent of wear test.
	3A	1960	0.5-5	0-0.5	No		--	61.5	4.0	2.3	3½	--	Gran. Borrow (Grav.)	Test #3 taken 40' from north stone wall, 40' from east stone wall. Test #3A represents 0.5-5', rej. for sub-base of gravel (not enough stones); ok for granular borrow.
	B	1960	5-8	0-5	No		100	98.2	32.3	6.1	1	--	Gran. Borrow (Sand)	Test #3B represents 5-8', rej. for sub-base of sand (too fine); ok for granular borrow.
	4	1960	0.5-7.5	0-0.5	No		--	25.3	8.0	3.25	3	30.2	Gran. Borrow (Grav.)	Test #4 taken 90' from group of alders, 200' from a lone elm. Material rej. for Item 201 (on abrasion), ok for Item 102A.
34	1	1960	1.5-6	0-1.5	Yes		--	47.2	4.0	1.25	2½	28.8	--	Owner: Wilbur LeClair. Test #1 taken in north face of pit (shallow). Material was dirty, sandy gravel to clayey till at 6'; rej. for Item 201, ok for granular borrow.

## MILTON GRANULAR DATA SHEET NO. 15

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
35	2	1960	1-5	0-1	Yes		--	39.2	4.0	1.0	2½	--	--	Test #2 taken in west face, is also shallow. Material rej. for Item 201 on gradation; ok for granular borrow.
	3	1960	2-10	0-2	Yes		--	36.3	4.0	1.0	2	--	Gran. Borrow (Grav.)	Test #3 taken in south face of pit. Material was sandy gravel to till; rej. for Item 201 on gradation; ok for granular borrow.
35	1	1960	1.5-6	0-1.5	Yes		--	57.3	8.0	2.0	2½	28.0	Gran. Borrow (Grav.)	Owner: Harold Turner. Test #1 taken in south face of pit area. Material was dirty, sandy gravel to clay & till at 6'. Rej. for Item 201; ok for Item 102A.
	2	1960	0.5-7.5	0-0.5	No		100	73.7	8.1	2.5	2	--	Gran. Borrow (Sand)	Test #2 taken north of pit area, close to pond. Material was sand with stones, water at 7.5'. Rej. for Item 202; ok for Item 102A.
36	1	1960	2-9	0-2	No		100	99.4	58.6	8.5	2	--	Gran. Borrow (Sand)	Owner: Gaston Rainville. Test #1 taken 500' south of hedge row. Material was sand, rej. for Item 202; ok for Item 102A.

## MILTON GRANULAR DATA SHEET NO. 16

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-10	0-1	No		--	34.0	2.0	1.5	1½	22.4	Gravel	Test #2 taken 350' north of Test #1, 150' south of hedge row. Material was gravel, passes for Items 201 & 102A.
	3	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	Test #3 taken in SW corner of field, 100' north of hedge row. Material was unsorted, stoney clay with large stones, not sampled.
	4	1960	1-8	0-1	Yes		--	Not	Sampled		--	--	--	Test #4 taken in west face of pit. Material was till, with ledge at 8', not sampled.
	5	1960	1-8	0-1	No		--	Not	Sampled		--	--	--	Test #5 taken in NW corner of field, 200' south of stone wall, 100' east of N-S running stone wall. Material was till, not sampled.
37	1	1960	1.5-14.5	0-1.5	Yes		100	82.1	30.4	5.0	2½	--	Gran. Borrow (Sand)	Owner: Gaston Rainville. Test #1 taken in north face of pit. Material was sand, silt & stones, rej. for Item 202 on gradation; ok for Item 102.
	2	1960	0-3	0	Yes		--	Not	Sampled		--	--	--	Test #2 taken in pit, south of Test #1. Material was sand, silt & stones, not sampled.

## MILTON GRANULAR DATA SHEET NO. 17

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft.)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
38	1	1960	2-18	0-2	Yes		--	See	Remarks		--	--	Gran. Borrow	Owner: Sweeney Bros. Test #1 taken in NE face of pit, 20' from tree hedge. Material was sand with a few small stones, water at 18'. Sieve Analysis: Sieve size: % Passing 1½" 100.0 3/4" 96.1 3/8" 89.1 #4 78.8 #10 67.8 #40 43.6 #200 3.1 #270 1.8 Soil type is A-1-b. Passes for granular borrow.
	2	1960	0-9	0	Yes		95.8	65.0	6.5	2.5	1½	--	Gran. Borrow (Sand)	Test #2 taken in NW face of pit. Pit extension is limited to west & south. Material was sand & stones to fine sand & water at 9'. Material was rej. for Item 202 (too coarse), ok for gran. borrow.
	3	1960	1-10	0-1	No		100	91.1	33.7	7.25	1½	--	Gran. Borrow (Sand)	Test #3 was taken 250' SW of pit #2. Material was sand, with some large stones over 6". Rej. for Item 202 (too fine); ok for Item 102A.

## MILTON GRANULAR DATA SHEET NO. 18

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	4A	1960	0.5-9	0-0.5	Yes		--	71.6	26	3.5	1½	--	Gran. Borrow (Grav.)	Test #4 taken in north face of pit. Test #4A represents 0.5-9' depth, sandy gravel; rej. for Item 201 on gradation, ok for Item 102A.
	B	1960	9-16	0-9	Yes		100	96.6	15.5	1.0	1½	--	Gran. Borrow (Sand)	Test #4B represents 9-16' depth, sand to blue clay; rej. for Item 202; ok for Item 102A.
39	1	1960	1-7.5	0-1	No		--	Not	Sampled		--	--	--	Owner: Charles Turner. This was an extensive area. Tests were taken in the field east of barn & fence. Test #1 was taken in NE corner of field, close to bedrock ledge. Material was dirty, unsorted till with large stones, not sampled. Test #2 was taken 200' SW of Test #1. Material was dirty sand with some small stones passed for Items 201 & 102A. Test #3 was taken 150' west of Test #2. Material was dirt & stone, not sampled.
	2	1960	1-8	0-1	No		--	23.4	4.0	2.25	3½	23.3	Gravel	
	3	1960	1-4.5	0-1	No		--	Not	Sampled		--	--	--	

## MILTON GRANULAR DATA SHEET NO. 19

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	4	1960	1-7	0-1	No		--	26.1	3.0	1.75	1½	24.0	Gravel	Test #4 was taken 170' SE of Test #3. Material was gravel with sand at 7'. Passes for Items 201 & 102A. Test #5 taken 150' SE of Test #4, 150' NW of 24" elm. Test #5A represents 1.5-6.5' depth; material was gravel, rej. for Item 201, ok for Item 102A. Test #5B represents 6.5-9.5' depth. Material was sand, passes for Items 202 & 102A.
	5A	1960	1.5-6.5	0-1.5	No		--	35.9	3.0	1.5	2	29.8	Gran. Borrow (Grav)	
	B	1960	6.5-9.5	0-6.5	No		100	96.9	12.5	0.9	2½	--	Sand	
40	1	1960	1-4	0-1	No		--	Not	Sampled	---	--	--	--	Owner: Emery H. Mason Test Nos. 1 thru 5 were taken in pasture south of house. Material was clay and large stones, not sampled. Test #6 was taken just south of Charles Turner prop., 165' west of ledge outcrop, 65' SW of 36" maple tree. Material was dirty gravel over fine gray sand. Test #6A represents 1-4' depth, gravel rej. for Item 201, ok for Item 102A.
	2	1960	1-6	0-1	No		--	Not	Sampled	---	--	--	--	
	3	1960	1-5	0-1	No		--	Not	Sampled	---	--	--	--	
	4	1960	1-7	0-1	No		--	Not	Sampled	---	--	--	--	
	5	1960	1-6	0-1	No		--	Not	Sampled	---	--	--	--	
	6A	1960	1-4	0-1	No		--	35.8	7.0	2.5	2½	35.0	Gran. Borrow (Grav)	



## MILTON GRANULAR DATA SHEET NO. 20

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	6B	1960	4-10	0-4	No		100	98.8	21.7	1.5	1½	--	Gran. Borrow (Sand)	Test #6B represents 4-10' depth, sand rej. for Item 201; ok for Item 102A.
	7	1960	5-10	0-5	No		100	99.7	25.9	3.0	3	--	Gran. Borrow (Sand)	Test #7 taken 200' from bedrock outcrop 250' from gully, 165' north of fence. Material was sand, rej. for Item 202; ok for Item 102A.
	8	1960	1-4.5	0-1	No		--	Not	Sampled		--	--	--	Test #8 taken close to gully & pasture; material was dirty, sandy gravel, not sampled.
41	1	1960	0.5-5	0-0.5	No		100	99.5	12.0	2.0	3½	--	Sand	Owner: Bernard Pigeon. Test #1 taken on a north knoll of a group of denuded sand knolls Area extends considerably N-S. Material was sand, passes for Items 202 & 102A.
42	1	1960	1.5-5.5	0-1.5	No		100	99.4	18.8	1.0	1½	--	Gran. Borrow (Sand)	Owner: Chas. Turner. Test #1 taken on 8' face exposed in Town Road cut on west side of road. Material was sand, rej. for Item 202; ok for Item 102A.
43	1	1960	0.5-4.5	0-0.5	Yes		100	84.0	7.6	0.75	1	--	Gran. Borrow (Sand)	Owner: Wayne C. Marks. Test #1 taken about 200' east of brick house. Material was

## MILTON GRANULAR DATA SHEET NO. 21

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														fine sand with a layer of coarse sub-angular stones, rej. for Item 202; ok for Item 102A.
44	1	1960	0.5-3	0-0.5	No		100	96.2	13.4	3.7	1	--	Sand	Owner: Edward Cote. Test #1 taken just east of access road east of Wayne C. Marks summer home. Material was fine sand, limited in area. Passes for Items 202 & 102A.
45	1	1960	0-3	0	Yes		100	94.8	22.8	2.7	2	--	Gran. Borrow (Sand)	Owner: Thomas Curran. This area is part of a very large sand area. Much material has already been removed. Test #1 taken in south side of pit, rej. for Item 202; ok for Item 102A.
46	1	1960	0-3	0	No		--	Not	Sampled		--	--	--	Owner: Lyndon Sheldon. Test #1 taken at side of Town Road south of road to house. Material was very fine sand, not sampled.
47	1	1960	0-15	0	Yes		100	100	75.0	15.3	1	--	--	Owner: James Manley. Test #1 taken in north side of pit, 15' face sample. A large deposit of fine sand in thinly bedded layers, rej. for Items 201 & 102A.

## MILTON GRANULAR DATA SHEET NO. 22

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
48	1	1960	0-4	0	No		100	100	53.0	6.3	3	--	Gran. Borrow (Sand)	Owner: John McGraw. Test #1 taken in knoll about 200' north of barn. An extensive area of fine sand, rej. for Item 202; ok for Item 102A.
49	1	1960	0.5-3.5	0-0.5	No		100	100	26.6	2.0	3	--	Gran. Borrow (Sand)	Owner: Green Mountain Power. Test #1 taken on knoll under power line. Material was fairly clean sand, limited in area. Rej. for Item 202 (too fine) ok for Item 102A.
50	1	1960	0-4	0	No		100	99.1	9.9	0.9	3	--	Sand	Owner: Merrill Badger. This is a large sand area with deep erosion gullies. Relief between Test Nos. 1 & 2 is approximately 12'. Test #1 taken on west side of 1st draw west of Town Road running N-S. Material passes for Items 202 & 102A.
	2	1960	0-4	0	No		--	Not	Sampled		--	--	--	Test #2 taken west of 2nd draw. Material was fine sand, not sampled.
	3	1960	0-4	0	No		100	99.2	38.7	8.1	1	--	Gran. Borrow (Sand)	Test #3 taken west of 2nd draw also. Material was sand with clay at 4'. Rej. for Item 202; ok for Item 102A.

## MILTON GRANULAR DATA SHEET NO. 23

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over- Burden (ft)	Exist- ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	4	1960	0-4	0	No		--	Not	Sampled		--	--	--	Test #4 was taken in 1st draw. Material was sand (wet) not sampled. Test #5 was taken in 1st draw. Material similar to Test #4, not sampled. Test #6 was taken east of draw. Material was sand, passes for Items 202 & 102A.
	5	1960	0-4	0	No		--	Not	Sampled		--	--	--	
	6	1960	0-4	0	No		100	99.3	14.9	2.0	1	--	Sand	
51	1	1960	0-3	0	No		100	99.6	47.9	17.0	1	--	--	Owner: Charles Turner. This is a large sand area. Test #1 taken off Town Road, across fence from dump. Material was fine sand, rej. for Items 202 & 102A.

## MILTON ROCK DATA SHEET NO. 1

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
1	1	1960	Limestone	No	Chip	4.6	--	<p>Owner: Van B. Everest. Test #1 was taken along ridge at random across strike. Rock was light gray and white limestone, passes for Item 204.</p> <p>Test #2 was taken in the white quartzite east of Test #1. Rock passes for Item 204. This is quite an extensive area running parallel to the shore of Lake Champlain. The quartzite ridge overlies the limestone.</p>
	2	1960	Quartzite	No	Chip	4.0	--	
2	1	1960	Dolomite	No	Chip	4.6	--	<p>Owner: Harold Taylor. Test #1 was taken on ridge just north of Town Road, 0.2 mi. west of small camp. Rock was light red &amp; gray dolomite interbedded with some light gray quartzite. Passes for Item 204. This area is apparently the southern extension of the ridge in Area #1.</p>
3	1	1960	Quartzite	No	Chip	6.0	--	<p>Owner: J. C. Sheehan. Test #1 was taken on side of hill east of barn. A bare hill to the west shows quartzite overlying shale. Rock in Test #1 appears to be an impure dolomitic quartzite. Area is quite extensive, samples were taken across strike.</p>
4	1	1960	Dolomite & Quartzite	No	Chip	5.0	--	<p>Owner: E. B. Towne. Test #1 taken across strike of two parallel ridges of bedrock. Rock was interbedded gray quartzite &amp; dolomite.</p>

## MILTON ROCK DATA SHEET NO. 2

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
								Passes for Item 204. Ridges of rock are rather small in extent.
5	1	1960	Dolomite & Quartzite	No	Chip	5.4	--	Owner: Carroll E. Towne. Test #1 was taken in a freshly exposed road cut. Rock was dark gray dolomite & quartzite with veins of quartz & vugs with quartz crystals. Rock passes for Item 204. There is a possibility of extension to the south.
6	1	1960	Dolomite & Quartzite	No	Chip	4.8	--	Owner: Carroll E. Towne. Test #1 was taken in a small rock outcrop in road cut on West Milton Town Road south of Towns Corner. Rock was interbedded quartzite & dolomite; passes for Item 204.
7	1	1960	Dolomite & Quartzite	No	Chip	3.6	--	Owner: Henry Marcoux. Test #1 taken in road cut on Town Road just south of Round Pond. Rock was interbedded quartzite & dolomite (gray in color); passes for Item 204. Area is limited as to possible extension.
8	1	1960	Limestone & Dolomite	No	Chip	5.6	--	Owner: C. Orlow Sanderson. Test #1 taken in knoll in pasture representative of a large area with many knolls. Rock was gray limestone & dolomite with many solution cavities. Passes for Item 204.
9	1	1960	Dolomite	No	Chip	4.7	--	Owner: Rene Berard. Test #1 taken north of large sand area. There

## MILTON ROCK DATA SHEET NO. 3

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
								was no extensive outcrop of bed-rock in the area, just scattered outcrops of gray dolomite. Passes for Item 204.
10	1	1960	Dolomite & Quartzite	No	Chip	4.4	--	Owner: Rene Berard. Test #1 taken along ledge running parallel to Lamolille River. Rock was interbedded gray quartzite & dolomite. Passes for Item 204. Fairly extensive area, with a 50'-60' face exposed along roadside.
11	1	1960	Dolomite	No	Chip	8.2	--	Owner: C. Orlow Sanderson. Test #1 taken on hill north of private road. Hill was heavily covered with overburden so that rock sampled is not necessarily bedrock. Rej. for Item 204 on percent of wear test.
12	1	1960	Dolomite	No	Chip	5.4	--	Owner: Harold Cadreact. Test #1 taken in rock outcrop west of Town Road, north of house. Rock was gray dolomite. Sample might be used to represent several rock outcrops in the area, which is quite extensive. Passes for Item 204.
13	1	1960	Dolomite	No	Chip	3.4	--	Owner: Harold Littlefield. Test #1 taken in rock ridge on same side of road as (NE from) house. Rock was siliceous dolomite, passes for Item 204. This rock outcrop is only one of many, all of low relief.

## MILTON ROCK DATA SHEET NO. 4

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
14	1	1958	Dolomite	Yes	Chip	4.0	--	Owner: Vermont Fish & Game. Test #1 taken in quarry just off US Route 2. Rock was reddish to buff dolomite, passes for Item 204. This is an extensive area with good possibilities for expansion.
15	1	1960	Dolomite	Yes	Blasted	3.2	--	Owner: H. W. McDonald. Test #1 taken in quarry. Rock was reddish to buff dolomite; passes for Item 204. Rock was used in 1957 for rock islands around St. Lawrence power poles across Lake Champlain.
16	1	1960	Dolomite	No	Chip	4.0	--	Owner: E. Sibley. Test #1 taken from top of ridge down the slope to the west. Rock was light gray to gray dolomite. Passes for Item 204. There was good relief on the ridge, area extends across brook (thinly mantled).
17	1	1960	Quartzite	No	Chip	3.0	--	Owner: Helen Ladue. Test #1 taken in ledge outcrop just south of Town Road. Rock is quartzite meeting percent of wear requirements for all types of construction. Test #2 taken SW of Test #1 in same ledge. Passes for Item 204. This ledge is approximately 175' across strike & approximately 175' along strike. Face is about 10' high.
	2	1960	Quartzite	No	Chip	3.4	--	
18	1	1960	Dolomite	No	Chip	5.4	--	Owner: Helen Ladue. Test #1 taken in ledge 200' west of ledge in Area #17. Rock is maroon to reddist



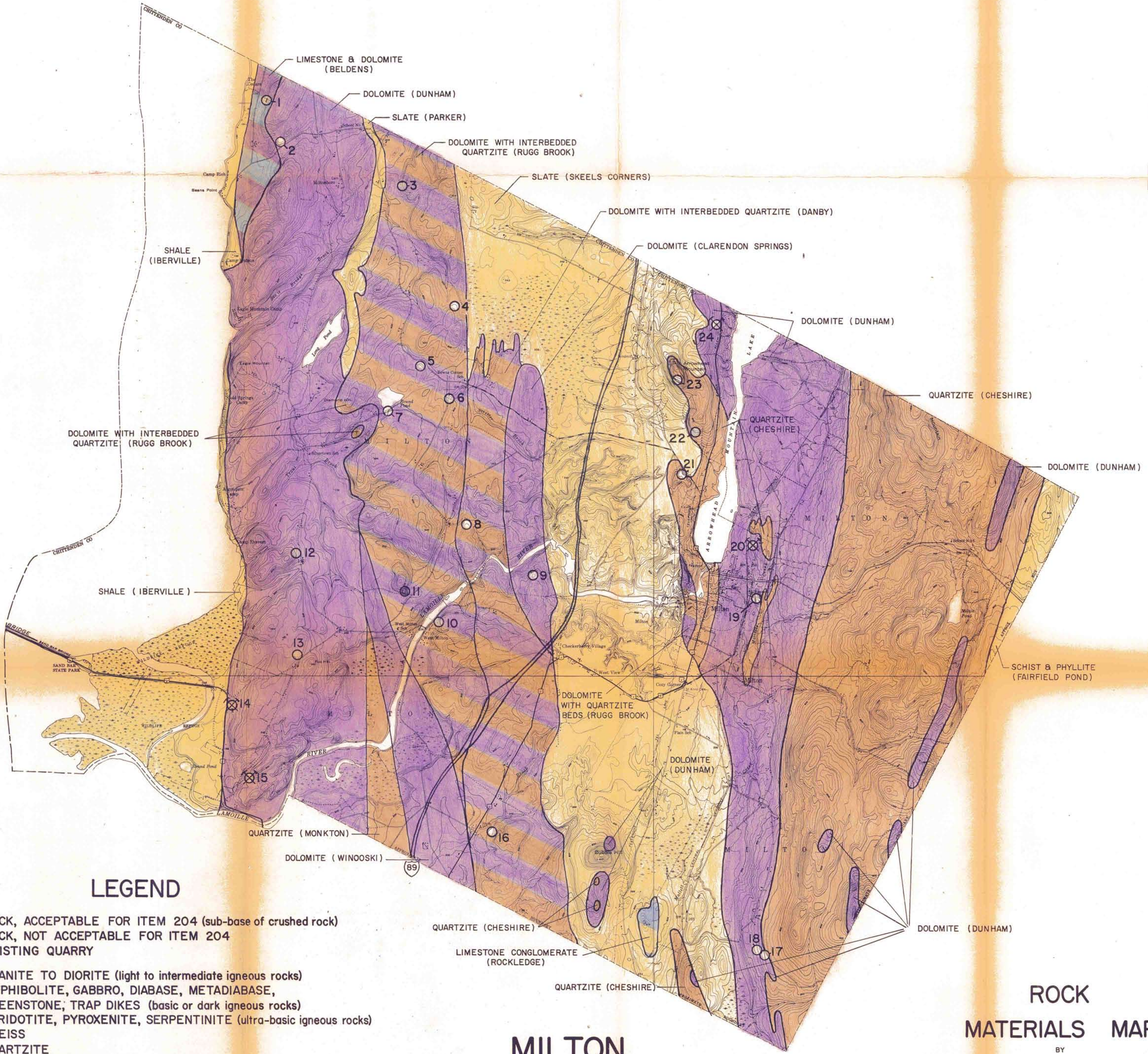
## MILTON ROCK DATA SHEET NO. 5

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
								brown dolomite, passes for Item 204. This outcrop is approximately 250' wide, extending north across Town Road & south. Good relief with shallow mantle.
19	1	1960	Dolomite & Quartzite	No	Chip	6.0	--	Owner: H. Cadreact. Test #1 taken across strike of two parallel ridges. Rock was variable (intermittently fine-to-coarse-grained quartzite, to dolomite). Passes for Item 204. The two ridges run N-S & are about 300' in breadth with overburden in the center. They are apparently the southern extension of the ridge being quarried now by Rowe Construction Co.
20	1	1959	Dolomite	Yes	Chip	8.4	--	Owner: Arrowhead Stone Products Quarry. Test #1 was a sample taken before quarry was opened, represented only the buff-colored weathered rock. Rej. for Item 204 on percent of wear test. Test #2 was taken after quarrying operations had begun by Rowe Construction Co. & represents the fresh gray colored dolomite. Passes for Item 204.
	2	1959	Dolomite	Yes	Chip	3.8	--	
21	1	1960	Quartzite	No	Chip	2.0	--	Owner: Theresa Choiniere. Test #1 taken 500' across strike of large bedrock outcrop. Rock is quartzite passing percent of wear requirements for all types of highway construction. Outcrop has good relief on east side, but proximity

## MILTON ROCK DATA SHEET NO. 6

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
								of houses seems to necessitate taking rock from the more gentle western slope.
22	1	1960	Quartzite	No	Chip	4.4	--	Owner: James L. Manley. Test #1 taken at first outcrop up from bottom of slope. Rock was impure quartzite, passes for Item 204. This is quite an extensive area, with possible extension to the east.
23	1	1960	Quartzite	No	Chip	3.2	--	Owner: James L. Manley. Test #1 was taken up the hill east of the Manley home. Rock was quartzite in the vertical face just above the talus; passes for Item 204. Very large amount of quartzite above the dolomite & schist to top of mountain.
24	1	1960	Dolomite	Yes	Chip	3.8	--	Owner: John McGraw. Test #1 taken in quarry across US Route 7 from Arrowhead Lake. Rock is siliceous dolomite, varying greatly in surface color. Passes for Item 204. Possible extension to the west, where overburden is partially stripped.

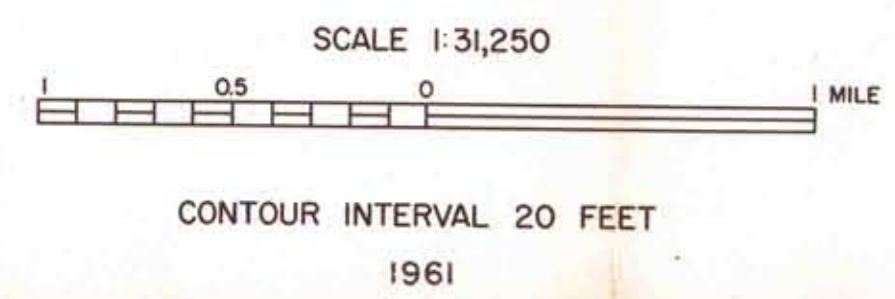




LEGEND

- ROCK, ACCEPTABLE FOR ITEM 204 (sub-base of crushed rock)
- ROCK, NOT ACCEPTABLE FOR ITEM 204
- ✕ EXISTING QUARRY
- GRANITE TO DIORITE (light to intermediate igneous rocks)
- AMPHIBOLITE, GABBRO, DIABASE, METADIABASE, GREENSTONE, TRAP DIKES (basic or dark igneous rocks)
- PERIDOTITE, PYROXENITE, SERPENTINITE (ultra-basic igneous rocks)
- GNEISS
- QUARTZITE
- DOLOMITE
- MARBLE, LIMESTONE
- SCHISTS, SLATES, PHYLLITES, SHALES, CONGLOMERATES
- IDENTIFICATION NUMBER (refer to text)

MILTON



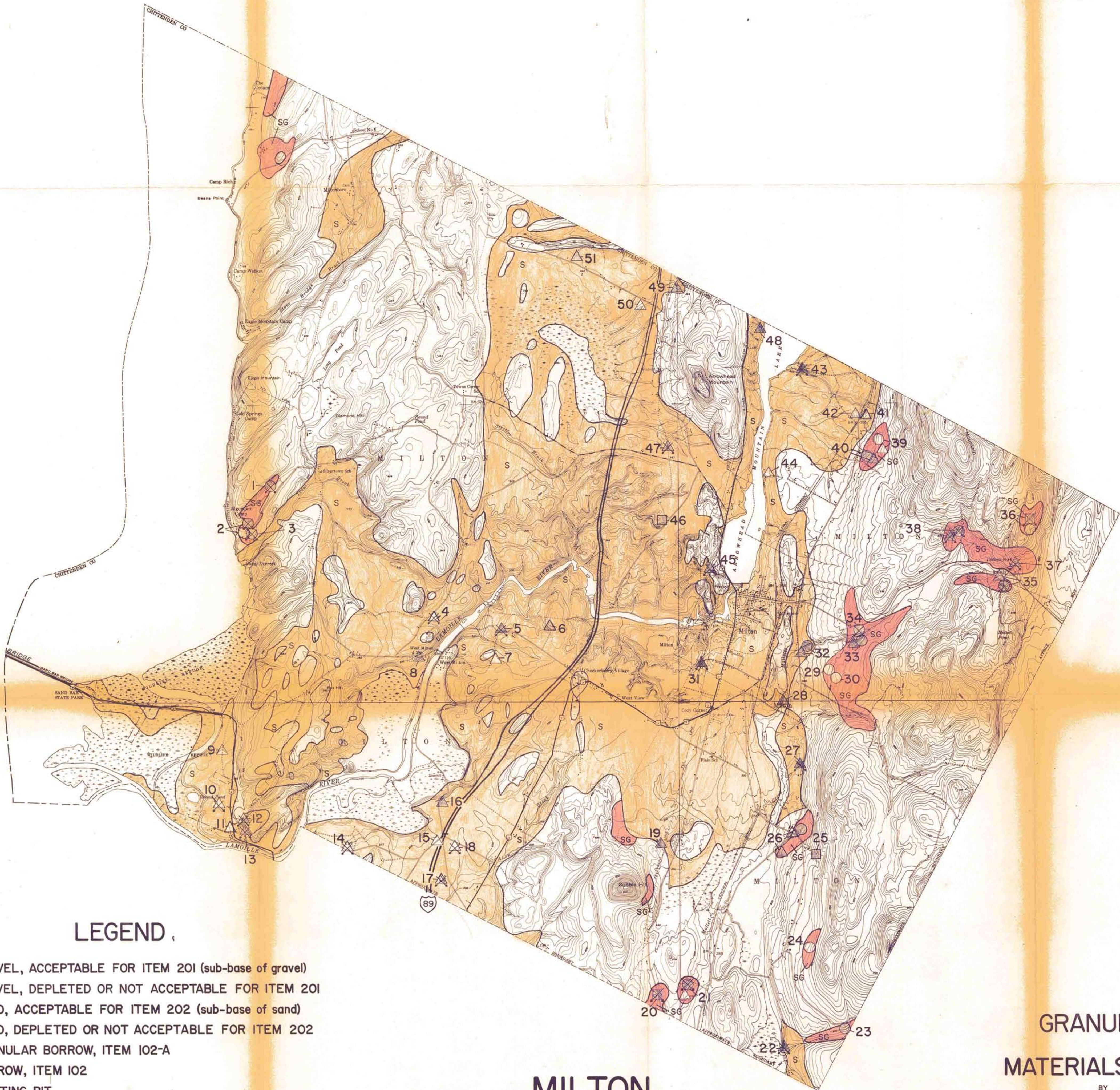
ROCK MATERIALS MAP

BY  
VERMONT DEPARTMENT OF HIGHWAYS  
IN COOPERATION WITH  
U.S. BUREAU OF PUBLIC ROADS

NOTE: BASED ON U.S.G.S. TOPOGRAPHIC MAPS

REVISIONS	DATE	12/61					
	BY	D.B.					

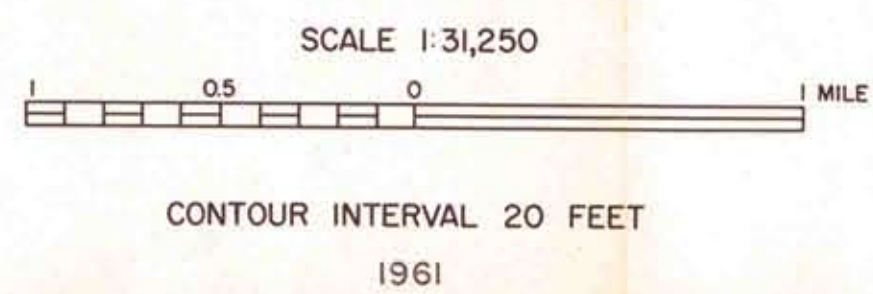




LEGEND

- GRAVEL, ACCEPTABLE FOR ITEM 201 (sub-base of gravel)
- GRAVEL, DEPLETED OR NOT ACCEPTABLE FOR ITEM 201
- △ SAND, ACCEPTABLE FOR ITEM 202 (sub-base of sand)
- ▲ SAND, DEPLETED OR NOT ACCEPTABLE FOR ITEM 202
- GRANULAR BORROW, ITEM 102-A
- BORROW, ITEM 102
- ✕ EXISTING PIT
- SG SAND & GRAVEL DEPOSIT
- S SAND DEPOSIT
- 3 IDENTIFICATION NUMBER (refer to data sheets)

MILTON



GRANULAR  
MATERIALS MAP

BY  
VERMONT DEPARTMENT OF HIGHWAYS  
IN COOPERATION WITH  
U.S. BUREAU OF PUBLIC ROADS

NOTE: BASED ON U.S.G.S. TOPOGRAPHIC MAPS

DATE					
BY					