

**SURVEY OF HIGHWAY CONSTRUCTION MATERIALS
IN THE TOWN OF LEICESTER, ADDISON COUNTY, VERMONT**

prepared by

**Engineering Geology Section, Materials Division
Vermont Department of Highways**

in cooperation with

**United States Department of Transportation
Federal Highway Administration**

Montpelier, Vermont

April, 1976

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Acknowledgments

The work of this Project was implemented with 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 Division and Mapping Section and the Materials Division.
2. Professor D. P. Stewart of Miami University, Oxford, Ohio.
3. Professor C. G. Doll, Vermont State Geologist, University of Vermont, Burlington, Vermont.
4. United States Department of Commerce, Federal Highways Administration.

History

The Materials Survey Project was formed in 1957 by the Vermont Department of Highways with the assistance of the Federal Highway Administration. Its prime objective was to compile an inventory of highway construction materials in the State of Vermont. Originally, investigations for highway construction materials were conducted only as the immediate situation required and only limited areas were surveyed; thus, no over-all picture of material resources was available. Highway contractors or resident engineers were required to locate the materials for their respective projects and samples were tested by the Materials Division. The additional cost of exploration for construction materials was passed on to the State bringing about higher construction costs. The Materials Survey Project was established to eliminate or minimize this factor by enabling the State and the contractors to proceed with information on available material resources and to project cost estimates. 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 are used 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 together.

Enclosures

Included in this report are two surface-geology maps, one defining the location of tests on bedrock, the other defining the location of tests on granular materials. These maps are based on 15-minute or 7-1/2-minute quadrangles of the United States Geological Survey enlarged or reduced to 1:31250 or 1" = 2604'. Delineated on the Bedrock Map are the various rock formations and types in the township. This information was obtained from: Vermont Geological Survey Bulletins, Vermont State Geologist Reports, United States Geological Survey Bedrock Maps, Centennial Geological Map of Vermont, the Surficial Geologic Map of Vermont and other references.

The granular materials map shows areas covered by various types of glacial deposits (outwash, moraines, kames, kame terraces, eskers, etc.) by which potential sources of gravel and sand may be recognized. This information was obtained primarily from a survey conducted by Professor D. P. Stewart of Miami University, Oxford, Ohio, who mapped the glacial features of the State of Vermont during the summer months from 1956 to 1966. Further information is obtained from the Soil Survey (Reconnaissance) of Vermont (conducted by the Bureau of Chemistry and Soils of the United States Department of Agriculture), 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. The number and location of tests taken in each area represented by an Identification

Number is determined by the nature of the material or its topographic feature.

Also included in this report 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 an active card file compiled and updated by the Engineering Geology Section of the Materials Division over a period of years. Transfer of information from the cards to the data sheets was made and the location of the deposits was plotted on the maps. However, some cards in the file were not used because of incomplete or unidentifiable information on the location of the deposit. Caution should be exercised wherever this information appears incomplete.

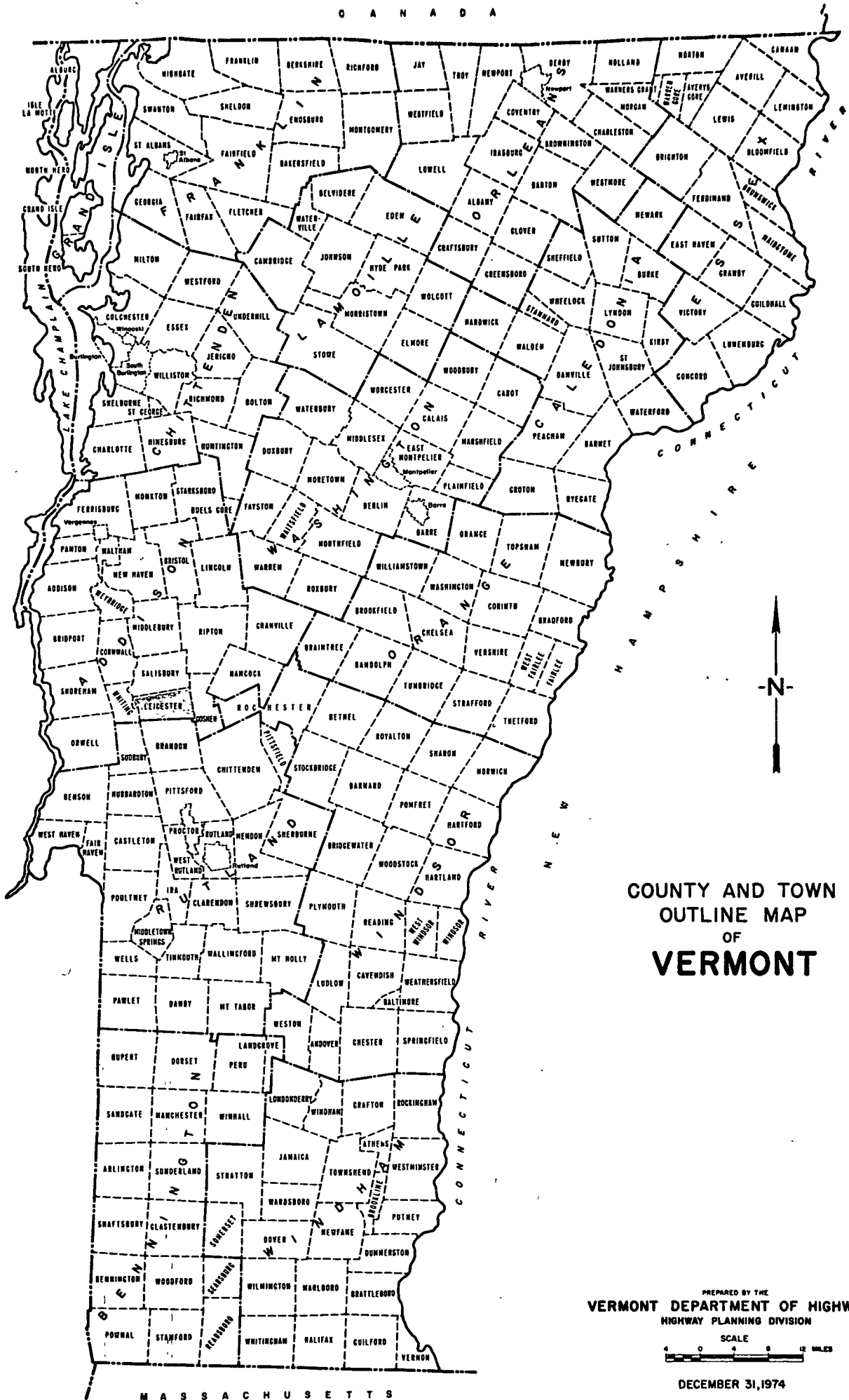
Work sheets, containing more detailed information and a field sketch of the area represented by the Identification Number, and laboratory reports are on file in the Materials Division of the Vermont Department of Highways.

Location

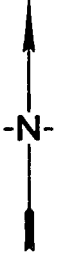
The town of Leicester is on the south-central edge of Addison County in west-central Vermont. It is bounded on the north by Salisbury, on the east by Goshen, on the south by Brandon, and on the west by Whiting. (See County and Town Outline Map of Vermont on following Page.)

Most of the town is in the Champlain Lowland physiographic sub-division of the New England Upland; only the extreme east edge of town is in the Green Mountains physiographic sub-division. The topography of the Champlain Lowland is flat or gently sloping, but rises to wooded knolls and ridges towards the eastern half of town. The eastern part of town rises abruptly to the rugged, steep-sided Green Mountains. Elevations range from 1,862 feet atop an unnamed ridge in the east side of town, to 330 feet where the Otter Creek crosses the Whiting town line in the northwest corner of town.

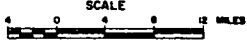
Drainage is via Seymour Brook, flowing westward into the Leicester River, and Otter Creek which flows northwestward into Lake Champlain. Leicester Hollow Brook flows south along the east edge of town. Mud Pond, Fern Lake, Silver Lake, and the southern half of Lake Dunmore are in the northeast corner of town. The low-lying central and west parts of town are marshy.



**COUNTY AND TOWN
OUTLINE MAP
OF
VERMONT**



PREPARED BY THE
VERMONT DEPARTMENT OF HIGHWAYS
HIGHWAY PLANNING DIVISION



DECEMBER 31, 1974

NEW YORK

MASSACHUSETTS

SURVEY OF ROCK SOURCES

Procedure for Rock Survey

The method employed by the project in a survey of possible sources of rock for highway construction is divided into two main stages: office and field investigations.

The office investigation is conducted primarily during the winter months and comprises the mapping and description of rock types as indicated in the many reference sources, as indicated in the bibliography. These references differ considerably in dependability due to new developments and studies that have contributed to the obsolescence of a number of reports. In addition, the results of samples taken by other individuals are analyzed, and the location at which these samples were taken, is mapped when possible. As complete a correlation as possible is made of all the available information concerning the geology of the area under consideration.

The field investigation is begun by making a cursory survey of the entire town. The information obtained from this preliminary survey, as well as that assimilated in the office investigation, is used to determine the areas where sampling will be concentrated. When a promising source has been determined by rock type, volume of material, accessibility, and adequate exposure and relief, chip samples are taken with a hammer across the strike or trend of the rock, and are submitted to the Materials Division for abrasion testing by the Deval Method (AASHTO T-3) and the Los Angeles Method (AASHTO T-96). Samples taken by the chip method are often within the weathered zone of the outcrop and consequently may give a less satisfactory test result than fresh material deeper in the rock structure. When the rock is uniform, and the chip samples yield acceptable abrasion test results, the material source is included in this report as being satisfactory.

Discussion of Rock and Rock Sources

The information on the Rock Materials Map (Plate II) is simplified. (For a more detailed description of the respective rock formations, see the summary included in this report). The summary shows that complex metamorphic and sedimentary rocks underlie the town of Leicester.

The rock formations are listed from west to east: the Middlebury Limestone, the Beldens, Weybridge, and Burchards Members of the Chipman formation, the Bascom formation, the Cutting Dolomite, the Shelburne formation, the Clarendon Springs Dolomite, the Danby formation, the Winooski Dolomite, the Monkton Quartzite, the Dunham Dolomite, the Cheshire Quartzite, the Moosalamoo Phyllite, and the Forestdale Dolomite; all are rocks of the Champlain Valley Sequence; and the Pinnacle formation of the Green Mountain Sequence.

The Chipman formation (limestone, marble, and dolomite) was sampled at four locations (Map Identification Numbers 1, 2, 3, and 4) on the west side of town, three of which were inactive quarries. All except Map Identification No. 2 yielded acceptable material. The Danby formation yielded acceptable material in the southern end of town at Map Identification No. 5, a low, north-south trending ridge in woods east of Town Highway No. 18. The Monkton Quartzite yielded acceptable material at Map Identification No. 6, a low wooded ridge southeast of the intersection of State Aid Highway No. 2 and Town Highway No. 6. The Cheshire Quartzite yielded acceptable material at Map Identification No. 7, a series of high wooded ledges east of Vermont Route 53 just south of the Salisbury Town Line.

The rock areas are listed most favorable first: Map Identification No. 7, 3, 1, 4, 5, and 6. No. 7 is on U.S. Forest Service land.

SURVEY OF SAND AND GRAVEL SOURCES

Procedure for Sand and Gravel Survey

The method employed by the project in a survey of possible sources of sand and gravel for highway construction is divided into two main stages: office and field investigations.

The office investigation is conducted primarily during the winter months and comprises the mapping of potentially productive areas from various references. Of these references, the survey of glacial deposits mapped by Professor Stewart proves to be particularly helpful 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 the recognition and location of physiographic features indicating glacial deposits, and in the study of drainage patterns. The locations of existing pits are mapped, as are the locations in which samples were taken by other individuals.

The field investigation is begun by making a cursory survey of the entire town. All pits, and any areas that show evidence of glacial or fluvial deposition are noted, and later investigated by obtaining samples of materials from pit faces and other exposed surfaces. Test holes in pit floors and extensions are dug with a backhoe to a depth of approximately 11 feet to obtain samples which are submitted to the Materials Division where they are tested for stone abrasion by the AASHTO T-4 Method, and sieved for gradation.

Discussion of Sand and Gravel Deposits

Results of this survey showed that granular materials in Leicester suitable for highway and related construction purposes were deposited by glaciofluvial processes at elevations between 550 and 650 feet in a narrow band of north-south trending kames, kame terraces, and kame moraines flanking the eastern shores of Lake Dunmore and Fern Lake.

The most promising sources of Gravel for Sub-base, Item 704.05 are pits listed most favorable first: Map Identification Numbers 17, 11, and 19.

Meager deposits of lake sands were found southeast of town at elevations between 400 and 550 feet.

The most promising sources of Sand Borrow and Cushion, Item 703.03 are listed most favorable first: Map Identification Numbers 8, 10, and 9; No. 10 is not a pit.

Summary of Rock Formations in the Town of Leicester

Bascom formation: Interbedded dolomite, limestone or marble, calcareous sandstone, quartzite, and limestone breccia; irregular dolomitic layers, thin sandy laminae, and slaty or phyllitic partings characterize limestone and marble of lower, middle, and upper parts of the Bascom, respectively; south of West Rutland it includes some of the Chipman formation.

Cheshire Quartzite: Very massive, white to faintly pink or buff vitreous quartzite near the top in west-central and southwestern Vermont; predominantly a less massive-appearing mottled gray, somewhat phyllitic quartzite; dolomitic sandstone and conglomerate near the base of the formation in west-central Vermont apparently grades southward into the Dalton formation.

Chipman formation (Beldens Member): Interbedded buff to brown, heavily scored dolomite, and white to blue-gray marble and limestone.

Chipman formation (Burchards Member): Blue-gray limestone with irregular spots of light buff dolomite that give weathered surface a mottled appearance.

Chipman formation (Weybridge Member): Gray limestone with thin ($\frac{1}{2}$ " to 2") interbeds of sandy limestone 1 to 4 inches apart.

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

Cutting Dolomite: Massive, gray-weathered, non-descript dolomite with finely laminated calcareous sandstone at the base.

Danby Formation: White, vitreous or glassy, quartzite beds, often cross-laminated, interbedded with gray dolomite. White quartzite beds, more than a foot thick and separated by 10 to 12 feet of dolomite in eastern areas, increase westward to continuous sections of white-to pink-weathered, massively bedded Potsdam quartzite.

Dunham Dolomite: Buff-weathered siliceous dolomite, pink-and cream-mottled, or buff to gray on fresh surface; lower part is sandy and resembles the Winooski Dolomite.

Forestdale Dolomite: Buff to rusty-weathered white, buff, pink and white mottled dolomite with local interbeds of dolomitic sandstone, gray-green phyllitic quartzite, and cross-bedded sandy dolomite.

Middlebury Limestone: Dark blue-gray, somewhat nodular and granular limestone with buff dolomite and shaly interbeds a fraction of an inch thick, and 2 to 4 inches apart.

Monkton Quartzite: 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 become gray and phyllitic to the east and south.

Moosalamoo Phyllite: Gray to black sericite-quartz phyllite; sericite-quartz-chlorite phyllite occurs locally.

Pinnacle formation: Schistose graywacke, gray to buff, commonly striped, quartz-albite-sericite-biotite-chlorite rock predominates; quartz-cobble and boulder conglomerate is common, chiefly near base.

Shelburne formation: A white marble or gray limestone characterized by raised reticulate lines of gray dolomite on the weathered surface.

Winooski Dolomite: Buff-weathered, pink, buff, and gray dolomite; beds 4 inches to 1 foot thick are separated by thin, protruding, red, pink, green, and black siliceous partings.

Glossary of Selected Geologic Terms

Albite: The light-colored, sodium end member of the plagioclase feldspar group, which is found in alkali rocks.

Argillaceous: Containing or consisting of clay. The term is commonly used with rock names to indicate the presence of clay; as argillaceous limestone, argillaceous sandstone.

Bedding: The arrangement of rock or granular material in layers.

Bedrock: The more or less solid, undisturbed rock at the surface, or beneath deposits of soil.

Bedrock Control: Land features which show bedrock on, or close to the surface; also used to describe part of the topography.

Biotite: A silicate mineral commonly known as black mica.

Breccia: A rock consisting of consolidated angular rock fragments larger than sand grains. There may be fault, talus, and volcanic breccia.

Calcareous: Consisting of, or containing from 10- to 50-percent Calcium carbonate (CaCO_3).

Carbonaceous: Containing carbon.

Chert: A very dense, tough siliceous rock, usually associated with limestone, in the form of nodules, concretions, or as distinct beds. No grains are visible to the naked eye.

Chlorite: A general group of green hydrous silicates of magnesium and iron, which may contain aluminum.

Dolomite: A rock consisting mostly of the mineral dolomite (CaMgCO_3), containing carbon dioxide, 47.4%; lime, 30.4%; and magnesia, 21.9%.

Drainage: The manner by which water moves on or beneath the earth's surface, in streams, rivers, brooks, and channels.

Drift: A deposit of earth, sand, gravel and boulders, carried by glaciers (Glacial Drift), or by water flowing from glaciers (Fluvio-glacial Drift). Large areas of North America and Europe are drift-covered in higher latitudes.

Fluvial: Pertaining to streams.

Geodes: A rock cavity, or hollow rock, lined with inwardly pointing crystals.

Glacio-Fluvial: A term denoting formation by, or relation to streams within, upon, or emerging from glacial ice.

Glacio-Lacustrine: A term denoting formation by, or pertaining to deposition in quiet waters of glacial lakes.

Graywacke: Dark, hard sandstone with angular grains of quartz, feldspar and rock fragments in a fine compact matrix of micas, clay minerals and chlorite.

Interbedded: Occurring between beds, or lying adjacent and parallel to other beds of a different nature.

Kame: A conical mound or hill of often poorly stratified drift, deposited in contact with glacial ice by streams flowing in or on the ice.

Kame Terrace: Stratified sands and gravels deposited by water flowing between a glacier and an adjacent valley wall.

Kamic: Relating to stratified drift deposited by streams flowing in or on the ice at the sides or terminus of a glacier.

Lamina: A thin layer or stratified rock, 1 cm. or less thick.

Limestone: The most important and widely distributed of the bedded, sedimentary, carbonate rocks consisting chiefly of calcium carbonate (CaCO_3).

Marble: The soft, white metamorphic equivalent form of limestone.

Nodules: Small, roundish or irregular lumps of material such as nodules of ironstone. They may be either solid or hollow.

Outcrop: The part of a body of rock that appears bare and exposed at the surface of the ground.

Phyllite: A fine-grained, foliated, metamorphic rock intermediate between the mica schists and slates into which it may grade. The foliation is caused by large amounts of potash mica (sericite) which gives the rock a distinctive silvery appearance.

Quartzite: The compact, metamorphic equivalent of sandstone composed of quartz grains so firmly bonded that fracture occurs across the grains instead of around them.

Relief: The difference in elevation between the summits and lowlands of a particular region.

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

Sediments: All materials deposited from water (streams, lakes, or seas), wind or ice.

Sericite: A mineral very similar to muscovite mica, occurring as small flakes and scales which often give metamorphic rocks a pearly luster on smooth surfaces.

Shaly: Composed of, or having the properties of shale.

Siliceous: Composed of, or having the properties of silica (SiO_2).

Structural: Of, pertaining to, or resulting from the effects of folding or faulting of the earth's crust; tectonic; as structural ridges or valleys.

Till: An unsorted, unstratified, unconsolidated, heterogeneous mixture of clay, silt, sand, gravel and boulders deposited directly by glacial ice.

Vitreous: Having the luster of glass.

Water Table: The upper surface of a zone of saturation, except where the surface is formed by an impermeable body.

Weathered: Showing the effects of exposure to the atmosphere.

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PARTIAL SPECIFICATIONS FOR HIGHWAY CONSTRUCTION MATERIALS

Listed below are partial specifications for Highway Construction Materials as they apply to this report at date of publication. For a complete list of specifications see Standard Specifications for Highway and Bridge Construction, approved and adopted by the Vermont Department of Highways, January, 1972.

DIVISION 700 - MATERIALS

703.03 SAND BORROW AND CUSHION. Sand borrow shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the requirements of the following table:

TABLE 703.03A - SAND BORROW AND CUSHION

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	SAND PORTION
2"	100	
1½"	90-100	
½"	70-100	
No. 4	60-100	100
No. 100		0- 30
No. 200		0- 12

703.05 GRANULAR BORROW. Granular borrow shall be obtained from approved sources, consisting of satisfactorily graded, free draining, hard, durable stone and coarse sand reasonably free from loam, silt, clay, or organic material.

The Granular Borrow shall meet the requirements of the following table:

TABLE 703.05A - GRANULAR BORROW

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	SAND PORTION
No. 4	20-100	100
No. 200		0- 15

The maximum size stone particles of the Granular Borrow shall not exceed 2/3 of the thickness of the layer being spread.

704.05 GRAVEL FOR SUB-BASE. Gravel for Sub-base shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

- (a) Grading. The gravel shall meet the requirements of the following table:

TABLE 704.05A - GRAVEL FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	SAND PORTION
No. 4	20-60	100
No. 100		0- 18
No. 200		0- 8

The stone portion of the gravel shall be uniformly graded from coarse to fine, and the maximum size stone particles shall not exceed 2/3 the thickness of the layer being placed.

- (b) Percent of Wear. The percent of wear of the gravel shall be not more than 25 when tested in accordance with AASHTO T-4, or more than 40 when tested in accordance with AASHTO T-96.

704.06 CRUSHED STONE FOR SUB-BASE. Crushed stone for sub-base shall consist of clean, hard, crushed stone, uniformly graded, reasonably free from dirt, deleterious material, pieces which are structurally weak and shall meet the following requirements:

- (a) Source. This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.
- (b) Grading. This material shall meet the requirements of the following table:

TABLE 704.06A - CRUSHED STONE FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	
4 1/2"		100
4"		90-100
1 1/2"		25- 50
No. 4		0- 15

- (c) Percent of Wear. The percent of wear of the parent rock shall be not more than 8 when tested in accordance with AASHTO T-3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHTO T-96.

- (d) Thin and Elongated Pieces. Not more than 30 percent, by weight, of thin and elongated pieces will be permitted.

Thin and elongated pieces will be determined on the material coarser than the No. 4 sieve.

- (e) Filler. The filler shall be obtained from approved sources and shall meet the requirements as set up for Sand Cushion, Subsection 703.03.
- (f) Leveling Material. The leveling material shall be obtained from approved sources and may be either crushed gravel or stone screening produced by the crushing process. The material shall consist of hard durable particles, reasonably free from silt, loam, clay or organic matter.

This material shall meet the requirements of the following table:

TABLE 704.06B - LEVELING MATERIAL

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	
3/4"	100	
1/2"	70-100	
No. 4	50- 90	
No. 100	0- 20	
No. 200	0- 10	

704.07 CRUSHED GRAVEL FOR SUB-BASE. Crushed gravel for sub-base shall consist of material reasonably free from silt, loam, clay or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

- (a) Grading. The crushed gravel shall be uniformly graded from coarse to fine and shall meet the requirements of the following table:

TABLE 704.07A - CRUSHED GRAVEL FOR SUB-BASE

GRADING	Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
		TOTAL SAMPLE	SAND PORTION
COARSE	4"	100	
	No. 4	25- 50	100
	No. 100		0- 20
	No. 200		0- 12
FINE	2"	100	
	1 1/2"	90-100	
	No. 4	30- 60	100
	No. 100		0- 20
	No. 200		0- 12

- (b) Percent of Wear. The percent of wear of the parent gravel shall be not more than 20 when tested in accordance with AASHTO T-4, or the crushed gravel a percent of wear of not more than 35 when tested in accordance with AASHTO T-96.
- (c) Fractured Faces. At least 30 percent, by weight, of the stone content shall have at least one fractured face.

Fractured faces will be determined on the material coarser than the No. 4 sieve.

704.09 DENSE GRADED CRUSHED STONE FOR SUB-BASE. Dense graded crushed stone for sub-base shall consist of clean, hard, crushed stone, uniformly graded, reasonably free from dirt, deleterious material and pieces which are structurally weak, and shall meet the following requirements:

- (a) Source. This material shall be obtained from approved sources and the area from which this material is obtained shall be stripped and cleaned before blasting.
- (b) Grading. This material shall meet the requirements of the following table:

TABLE 704.09A - DENSE GRADED CRUSHED STONE FOR SUB-BASE

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves TOTAL SAMPLE
3½"	100
3"	90-100
2"	75-100
1"	50- 80
½"	30- 60
No. 4	15- 40
No. 200	0- 10

- (c) Percent of Wear. The percent of wear of the parent rock shall be not more than 8 when tested in accordance with AASHTO T-3, or the crushed stone a percent of wear of not more than 40 when tested in accordance with AASHTO T-96.
- (d) Thin and Elongated Pieces. Not more than 30 percent, by weight, of thin or elongated pieces will be permitted.

Thin and elongated pieces will be determined on the material coarser than the No. 4 sieve.

704.10 GRAVEL BACKFILL FOR SLOPE STABILIZATION. Gravel backfill for slope stabilization shall be obtained from approved sources, consisting of satisfactorily graded, free draining, hard, durable stone and coarse sand reasonably free from loam,

silt, clay, and organic material.

The gravel backfill shall meet the requirements of the following table:

TABLE 704.10A - GRAVEL BACKFILL FOR SLOPE STABILIZATION

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	SAND PORTION
No. 4	20-50	100
No. 100		0- 20
No. 200		0- 10

The stone portion of the gravel backfill shall be uniformly graded from coarse to fine, and the maximum size stone particles shall not exceed 2/3 the thickness of the layer being placed.

704.11 GRANULAR BACKFILL FOR STRUCTURES. Granular backfill for structures shall be obtained from approved sources, consisting of satisfactorily graded, free draining granular material reasonably free from loam, silt, clay, and organic material.

The granular backfill shall meet the requirements of the following table:

TABLE 704.11A - GRANULAR BACKFILL FOR STRUCTURES

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	TOTAL SAMPLE	SAND PORTION
3"	100	
2½"	90-100	
No. 4	50-100	100
No. 100		0- 18
No. 200		0- 8

LEICESTER GRANULAR DATA SHEET NO. 1

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
1	1	1975	1.5-12	0-1.5	Yes	80	80	66	54	20	14	-----	Gran. Borrow (Gravel)	Owner: Henry D. Miner (formerly owned by Corbett). Area is an overgrown pit on wooded knoll adjacent to the east side of Vermont Route 53, 0.32 mile south of Salisbury Town Line. The knoll wa 170'x120', and 50 feet high. Test No. 1 was on the northeast fa of pit adjacent to road. Material was: 1.5'-4', dirty gravel; 4'-6', silty gravel; 6'-9', pebbly sand; 9'-12', sandy gravel; bottoms on sloughed material.
	2	1975	1.5-16	0-1.5	Yes	80	72	59	53	13	4	-----	Gran. Borrow (Gravel)	Test No. 2 was on southwest face c small pit, 120 feet northeast of Test No. 1. Material was: 1.5'-16' pebbly sand; bottoms on pebbly sand. The material near the road was stc and quite sandy on the northeast side.
2	1	1975	1-10	0-1	No	100	100	94	78	62	44	-----	----	Owner: Mrs. Albert Reading. Area a cornfield north of State Aid Highway No. 2; access is 0.43 mile west of the intersection of Town Highway No. 8. Only one test in the north end of cornfield was allowed. Test No. 1 was in central part of north end of field, just south of tree line. Material was: 1'-10', yellowish-brown silty-sand with s

TABLE I

LEICESTER GRANULAR DATA SHEET NO. 2

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
														angular stone fragments. Material was unsorted and unstratified.
3	1	1975	1-10	0-1	No	100	100	96	70	67	53	-----	----	Owner: Roy Shackett. Area is corr field northwest of the intersectic of State Aid Highway No. 2 and Tow Highway No. 6. Test No. 1 was in northwest corner of field. Materia was: 1'-3', mixed angular and round stones; 3'-10', yellowish-ta silt with angular stone fragments. Material was unsorted and unstrati fied.
4	1	1975	1-10	0-1	No	100	100	90	84	54	39	-----	---	Owner: Roy Shackett. Area is two joined cornfields south of State Aid Highway No. 2; access is 0.14 mile west of Town Highway No. 6. Test No. 1 was 50 feet south of north end of field, and 80 feet west of field road. Material was: 1'-3', stones and sand; 3'-10', unsorted and unstratified sand wi angular stone fragments.
	2	1975	1-10	0-1	No	91	91	80	61	24	17	13.3%	-----	Test No. 2 was in larger cornfiel, 170 feet south of tree-line open Material was: 1'-4', fine gravel; 4'-7', sand with cobbles; 7'-10', gravel (coarser than 1'-4' interv The gravel is very localized and may be the result of a small glacial-melt stream.

TABLE I

LEICESTER GRANULAR DATA SHEET NO. 3

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	3	1975	0.5-10	0-0.5	No	100	90	70	64	59	34	-----	----	Test No. 3 was near south edge of cornfield, 300 feet south of Test No. 2. Material was: 0.5'-2.5' fine gravel; 2.5'-10', sand. The gravel skim at top may be the result of shoaling.
5	1	1975	0.5-5	0-0.5	Yes	91	82	57	43	40	28	12.8%	-----	Owners: Frank and Richard Nicklaw. Area is rocky pasture with pit in northwest corner. Pit is 0.36 mile northwest of owner's doorway on U.S. Route 7, 0.03 mile north of the junction of Town Highway No. 16 and U.S. Route 7. Test No. 1 was in southeast corner of low, narrow pit. Material was: 0.5'-5', gravel; bottoms on water table.
	2	1975	1-6	0-1	No	100	100	100	94	65	49	-----	-----	Test No. 2 was in rocky pasture 150 feet east of test No. 1. Material was: 1'-6', random boulders in wet, sticky dirt; material was a till or ground moraine.
6	1	1975	1-10	0-1	No	100	100	81	65	48	28	-----	-----	Owner: Holt Peabody (leases land to Nicklaw Brothers) Area is a long corn field in woods, 0.5 mile north of Town Highway No. 17; access is 0.35 mile west of the junction of Town Highways No. 6 and 17. Test No. 1 was in northwest corner of field.

LEICESTER GRANULAR DATA SHEET NO. 4

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	2	1975	1-10	0-1	No	100	100	100	100	82	63	-----	----	Material was: 1'-3', fine gravel; 3'-6', pebbly gravel; 6'-9', pebbly sand; 9'-10', sand. Test No. 2 was in south corner of field, 350 feet south-southwest of Test No. 1. Material was: 1'-2', stones; 2'-10', silt and silt-clay with angular stone fragments.
7	1	1975	0.5-12	0-0.5	Yes	100	100	100	95	44	14	-----	Gran. Borrow (Sand)	Owner: Mrs. Connie Delorm. Area is a wooded knoll with steep-faced pit on northwest side. Pit is 0.2 mile west of Town Highway No. 6, 0.7 mile south of the intersection of State Aid Highway No. 2 and Town Highway No. 6. Test No. 1 was on south face of pit. Material was: 0.5'-12', uniform, brown sand.
8	1	1975	1.5-14	0-1.5	Yes	100	100	100	93	11	8	-----	Sand	Owner: Mrs. Connie Delorm. Area is small, overgrown, inactive pit 100 feet west of Town Highway No. 6 and 0.17 mile north of Town Highway No. 17. There was very little extension, and only a hand-shovel sample on the face was allowed. Test No. 1 was on the south face of pit. Material was: 1.5'-5', pebbly sand; 5'-8', sand; 8'-14', stony sand; bottoms in sloughed material. Owner was undecided about selling material.

LEICESTER GRANULAR DATA SHEET NO. 5

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
9	1	1975	1-7	0-1	Yes	100	100	100	88	12	4	-----	Sand	Owner: Asa B. Chatfield, Jr. Area is a shallow, sprawling pit east of Town Highway No. 6 and 0.15 mile north of its junction with Town Highway No. 17. Test No. 1 was on east face of pit. Material was: 1'-3', sand and pebbles; 3'-7', medium sand; bottom in sand.
10	1	1975	0.5-10	0-0.5	No	100	100	100	93	22	7	-----	Sand	Owner: Asa B. Chatfield, Jr. Area is south-sloping field south and southwest of Map Identification No. 8. Access is 0.15 mile north of the junction of Town Highways No. 6 and 17. Only one test hole was allowed in field. Test No. 1 was in uncut portion of northeast corner of field. Material was: 0.5'-10', uniform sand.
11	1-A	1975	0.5-17	0-0.5	Yes	74	63	43	33	9	6	5.8%	Gravel	Owner: Frank J. Malinowski. Area is a series of broad, low wooded knolls with three main pits and five minor pits. Area is 0.1 mile west of Town Highway No. 6, 0.1 mile north of the Brandon Town Line. Test No. 1-A was on the upper part of the south face of pit closest to the road. Material was: 0.5'-6', gravel with uniform, 1 1/2" stones; 6'-17', gravel; bottoms on Test No. 1-B.

SEICESTER GRANULAR DATA SHEET NO. 6

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	1-B	1975	17-29	0-0.5	Yes	86	75	54	35	4	2	7.2%	Gravel	Test No. 1-B was below Test No. 1-1 Material was: 17'-29', gravel; bottoms on sloughed material.
	2	1975	1-19	0-1	Yes	96	82	62	50	10	5	9.0%	Gravel	Test No. 2 was on northeast face of southerly pit, 160 feet southwest of Test No. 1. Material was; 1'-19' gravel; bottoms on floor. This gravel though finer than that in Test No. 1, was still good looking.
	3	1975	1-9	0-1	Yes	82	75	64	51	26	12	-----	Gran. Borrow (Sand)	Test No. 3 was on low east face of small west pit. Material was: 1'-4', fine sand; 4'-6', wet, sticky sandy silt; 6'-9', gravel; bottoms on sloughed material. The gravel from 6'-9' looks good.
	4	1975	0.5-7	0-0.5	Yes	100	100	100	100	86	40	-----	-----	Test No. 4 was on north face of small pit north of access road in woods northwest of main pit. Material was: 0.5'-7', fine to silty-sand; bottoms on sloughed silt.
	5	1975	0-10	-----	Yes	96	93	66	51	4	3	6.2%	Gravel	Test No. 5 was in floor of southwest corner of main pit. Material was: 0'-3', lenses of fine gravel and pebbly sand; 3'-5', pebbly sand; 5'-10', gravel.
	6	1975	0-10	-----	Yes	93	82	66	58	9	3	9.0%	Gravel	Test No. 6 was in floor of southern pit, 260 feet south of Test No. 5. Material was: 0'-10', slumped lens of sand and gravel.

TABLE I

LEICESTER GRANULAR DATA SHEET NO. 7

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
12	1	1975	1-8	0-1	No	100	100	91	84	73	53	-----	----	Owner: Walter Cerf, (former owner Col. Howe). Area is plowed field 0.16 mile southwest of State Aid Highway No. 2; access is 0.15 mile southeast of the junction of State Aid Highway No. 2 and Town Highway No. 8. Area was tested because stones sbowed on the surface of the field. Test No. 1 was in southeast corner of field. Material was: 1'-3', sand; 3'-8', silt with stone fragments. No sorting or stratification was note
	2	1975	1-8	0-1	No	100	100	94	87	60	39	-----	----	Test No. 2 was on ridge in north e of pasture, 215 feet north of Test No. 1. Material was: 1'-8', sandy s with angular stone fragments.
	3	1975	1-4	0-1	No	100	100	100	87	69	49	-----	-----	Test No. 3 was near north end of plowed field, 0.17 mile south-sout west of Test No. 1. Material was: 1'-4', sandy silt with angular stone fragments; bottoms at 4' on large boulders. Material was unsorted and unstratified.
13	1	1975	1.5-14	0-1.5	Yes	78	67	48	39	23	15	5.6%	Gran. Borrow (Gravel)	Owner: Curtis Prescott. Land was formerly the Dwire property. Area two small inactive, overgrown pits adjacent to the east side of State Aid Highway No. 2; access i: 0.20 mile north of its junction with State Aid Highway No. 4. Te.

TABLE I

LEICESTER GRANULAR DATA SHEET NO. 8

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	2	1975	1.5-12	0-1.5	Yes	96	89	65	33	15	11	20.0%	Gran. Borrow (Gravel)	No. 1 was on east face of south pit. Material was: 1.5'-5', gravel; 5'-7', sand; 7'-10', silty sand and silt-clay; 10'-14', gravel. Test No. 2 was on east face of north pit. Material was: 1.5'-12', gravel; bottoms on sloughed material.
14	1	1975	1.5-12	0-1.5	Yes	100	81	56	36	18	12	8.0%	Gran. Borrow (Gravel)	Owner: Curtis Prescott. Area is small, inactive pit adjacent to the southeastern side of the junction of State Aid Highways No. 2 and 4. Test No. 1 was on northeast face. Material was: 1.5'-12', medium fine gravel with some random large cobbles and boulders; bottom in sloughed material.
15	1	1975	1.5-21	0-1.5	Yes		SAMPLE			LOST				Owner: State of Vermont (Formerly: Dwire Pit). Area is an old, overgrown inactive pit with springs running from face, and trees and boulders on face and floor. Area 70 feet northeast of State Aid Highway No. 4; access is 0.32 mile south of its junction with State Aid Highway No. 2. Test No. 1 was on northeast face of pit east of road. Material was: 1.5'-8', coarse gravel, 8'-21', fine gravel with rocks, bottoms in sloughed material and

LEICESTER GRANULAR DATA SHEET NO. 9

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	2	1975	2-10	0-2	Yes	92	90	77	61	24	22	10.4%	----	free-running springs. Material looked good, but may need a crusher and some way to divert the springs. Material was hard to sample because it caves very easily.
	3	1975	1-10	0-1	No	96	93	74	48	13	10	8.8%	Gran. Borrow (Gravel)	Test No. 2 was on eastern face of pear-shaped, southern pit. Material was: 2'-10', stony fine gravel; bottoms in sloughed material. Tree roots and easy caving of material made it impossible to sample bottom of face. The floor is wet and has 2' to 4' boulders.
16	1	1975	0.5-4.5	0-0.5	Yes	81	74	60	49	16	12	9.0%	Gran. Borrow (Gravel)	Owner: Theron Atwood. Area is a small wet pit in woods, 0.26 mile north east of State Aid Highway No. 4, 0.3 mile southeast of its junction with State Aid Highway No. 2. Pit had 1.5 to 2 feet of water on floor. There were many large and medium-sized boulders in the area. Test No. 1 was on low northwest face. Material was: 0.5'-2', pebbly coarse sand; 2'-3', gravel; 3'-4.5', stony fine gravel; bottoms on water.

LEICESTER GRANULAR DATA SHEET NO. 10

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
17	1-A	1975	0-8	-----	Yes	77	69	58	44	7	4	12.4%	Gravel	Owner: State of Vermont, (former: Dwire Pit). Area is pit in woods, 0.08 mile east of State Aid Highway No. 4; access is 0.50 mile south of its junction with State Aid Highway No. 2. Test No. 1-A was northeast face of middle level of pit. Material was: 0'-2', silty coarse gravel; 2'-4', pebbly fine gravel; 4'-6', cobbly coarse gravel; 6'-8', pebbly fine gravel.
	1-B	1975	8-18	----	Yes	93	91	66	49	5	4	11.4%	Gravel	Test No. 1-B was below test No. 1. Material was: 8'-15', gravel; 15'-18', sand with some cobbles; water seeps from face at 15-foot level.
	2	1975	1.5-12	0-1.5	Yes	84	78	60	39	55	42	11.0%	----	Test No. 2 was on northwest face of upper level of pit. Material was: 1.5'-12', coarse gravel with some boulders; bottoms on sloughed material. It was difficult to get a sample because the face kept caving. This test represents the direction of major extension. A crusher or screen may be needed.
	3	1975	0.5-12	0-0.5	Yes	95	88	69	40	6	4	18.8%	Gravel	Test No. 3 was on east face of low south pit level. Material was: 0.5'-4', coarse gravel; 4'-5.5', layer of uniform-sized (3/4" to 1" stones; 5.5'-12', coarse gravel; bottoms in sloughed material. Face caved easily.

LEICESTER GRANULAR DATA SHEET NO. 11

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis % Passing						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
18	1	1975	3-10	0-3	No	92	92	80	51	26	24	11.8%	-----	Owner: E.D. Racine. (Formerly: The Fred Johnson Farm). Area is a series of low, slightly rounded, granular ridges in woods west and southwest of the pit at Map Identification No. 19. The ridges trend roughly northeast to north-northeast and extend southward beyond the Brandon Town Line. The area is 0.45 mile west of State Aid Highway No. 4; access is 0.36 mile north of the Brandon Town Line. The access is a logging road across Roy Shackett's land and would need a right-of-way for development. Test No. 1 was in a small clearing just east of logging road. Material was: 3'-10', gravel. The gravel had a brown silt-clay coating which made the gravel damp and mushy.
	2	1975	0.5-10	0-0.5	No	94	82	54	34	20	15	18.0%	Gran. Borrow (Gravel)	Test No. 2 was in woods, 450 feet northeast of Test No. 1. Material was: 0.5'-3', fine gravel; 3'-5', gravel with small boulders; 5'-10' gravel with random 12"-plus boulders. Material had brown, silt-clay coating.
	3	1975	1-10	0-1	No	65	57	44	32	48	39	13.6%	-----	Test No. 3 was atop wooded ridge, 200 feet south of Test No. 2. Material was: 1'-4', gravel; 4'-7' silty sand, or silt-clay and sand with stones; 7'-10', gravel with brown, silt-clay coating.

LEICESTER GRANULAR DATA SHEET NO. 12

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	4	1975	0.5-10	0-0.5	No	77	66	37	16	32	26	21.0%	-----	Test No. 4 was in small clearing north of logging road, 300 feet west of property line. Material was: 0.5'-3', gravel; 3'-5', bouldery gravel; 5'-8', pebbly gravel; 8'-10', gravel with brown silt-clay coating.
19	1	1975	0.5-12.5	0-0.5	Yes	88	84	58	26	9	7	-----	Gravel (grading only)	Owner: Roy Shackett (formerly: Fletcher Land). Area is large, mul level pit, 300 feet west of State Aid Highway No. 4, 0.36 mile north of the Brandon Town Line. Pit had boulders on faces and floors, and standing water in lower level. Owner did not want any additional material excavated from southern and eastern faces. Northwestern pit area was overgrown with small trees on faces and floor. The property line was along northern edge of pit. Test No. 1 on lower lift at southeast corner. 345 feet from southwest end of pit. Material was: 0.5'-1', medium coarse sand; 1'-12.5', medium-fine gravel with many pebbles.
	2-A	1975	1.5-22	0-1.5	Yes	96	96	82	56	5	4	9.2%	Gravel	Test No. 2 was in southwest face 275 feet southwest of Test No. 1. Material was: 1.5'-22', stoney, fine gravel; bottoms on Test No. 2-B.

LEICESTER GRANULAR DATA SHEET NO. 13

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Overburden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	2-B	1975	22-42	0-1.5	Yes	88	81	63	37	9	6	9.2%	Gravel	Test No. 2-B was below Test No. 2-Material was: 22'-26', fine sand; 26'-32', sandy gravel or fine gravel; 32'-42', gravel; bottoms in sloughed material.
	3-A	1975	1.5-22	0-1.5	Yes	85	75	57	38	7	5	10.8%	Gravel	Test No. 3-A was on western face of pit, 95 feet west of lower levee. Material was: 1.5'-22', coarse gravel with boulders and rocks; bottoms on Test No. 3-B. Boulders were up to 60".
	3-B	1975	22-44	0-1.5	Yes	91	85	54	27	9	7	13.8%	Gravel	Test No. 3-B was below Test No. 3-A. Material was: 22'-44', coarse gravel; bottoms in coarse gravel.
	4-A	1975	2-15	0-2	Yes	92	90	58	40	14	10	9.0%	Gravel	Test No. 4-A was on western face of pit, 135 feet north of Test No. 4-B. Material was: 2'-15', gravel with some rocks; bottoms on Test No. 4-B.
	4-B	1975	15-30	0-2	Yes	100	88	76	58	4	3	24.9%	Gravel	Test No. 4-B was below Test No. 4-A. Material was: 15'-18', sand; 18'-24', fine gravel with uniform-sized, 1/4" stones; 24'-30', gravel; bottoms on 10-foot boulder.
	5	1975	1.5-18	0-1.5	Yes	100	91	59	29	18	12	11.8%	Gran. Borrow (Gravel)	Test No. 5 was in south face of northwestern part of pit. Material was: 1.5'-18', gravel; bottoms on sloughed boulders and cobbles. There was a layer of silt-clay from 5' to 7'. The gravel caved very easily.

LEICESTER GRANULAR DATA SHEET NO. 14

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Exist-ing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VIID Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	6	1975	1.5-12	0-1.5	Yes	89	81	48	23	18	15	22.2%	Gran. Borrow (Gravel)	Test No. 6 was on the north face of northwestern part of pit. Material was: 1.5'-12', gravel with some faceted stones. The gravel had no silt-clay layer, and caved very easily.
	7	1975	0.5-6	0-0.5	Yes	76	69	35	16	15	11	17.1%	Gran. Borrow (Gravel)	Test No. 7 was in floor in southwest lobe of main pit. Material was: 0.5'-6', well-nested, hard-packed gravel; bottoms at 6' on gravel at water.
	8	1975	0.5-8	0-0.5	Yes	91	79	67	36	10	8	10.6%	Gravel	Test No. 8 was in floor west of stone piles in north end of pit. Material was: 0.5'-8', gravel with random, large (24"-plus) boulders. Hole caves very easily.
20	1	1975	2-5.5	0-2	Yes	50	47	39	28	14	9	20.0%	Gran. Borrow (Gravel)	Owner: Floyd B. Reed (former owner Pat Bailey.) Area is pit in terrace 0.04 mile northeast of State Aid Highway No. 4, access is 0.75 mile south of its junction with State Aid Highway No. 2. Test No. was in floor of north end of pit. Material was: 2'-5.5', coarse sandy gravel; bottoms in boulders.
21	1	1975	0-9	----	Yes	39	81	54	32	28	16	18.8%	----	Owner: Pat Bailey. Area is low, small pit 0.06 mile east of State Aid Highway No. 4; access is 0.20 mile north of the Brandon Town Li

LEICESTER PROPERTY OWNERS - GRANULAR

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Table II

LEICESTER ROCK DATA SHEET NO. 1

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist-ing Quarry	Method of Sampling	Abrasion AASHTO		Remarks
						T-3	T-96	
1	1-A	1975	Limestone and Dolomite	No	Chip	2.8%	22.6%	Owner: Andre LaJeunesse. Area is a flat-topped, wooded out-crop with steep, low slopes (15 feet to 40 feet high). It is 700 feet long by 70-140 wide atop the feature. The outcrop is in a pasture 0.04 mile north of the junction of Town Highways No. 10 and 12, and 0.04 mile east of Town Highway No. 12; the pasture borders the Leicester River to the south. The rock is mapped as the Weybridge Limestone Member, but it seems to be the Beldens Dolomite member. The rock bedding is thin, nearly obscure and steeply inclined. It strikes north, and dips 70° to 80° to the west. The bedding is distinct on the west-central crest of rocky knoll. There were many joints which caused the rock to have a considerable amount of small pieces; some were blocky, some angular, and some were tabular. There is good access and a large quantity of rock; this may be a good source. Most of the knoll is dolomite with a minor amount of limestone. The dolomite was hard and broke into blocky pieces; the limestone was soft and broke into sub-angular and platy pieces which shattered easily. The breakage had no preferred orientation. Test No. 1-A was a 60-foot east-to-west sample of random outcrops atop the east-central part of the feature.
	1-B	1975	Limestone and Dolomite	No	Chip	3.8%	20.8%	Test No. 1-B was a 60-foot sample of random exposures west of Test No. 1-A.
2	1	1975	Limestone Marble and Dolomite	Yes	Chip	15.8%	43.4%	Owner: H.B. Huntley, Inc. Area is an inactive quarry, 200 feet south of State Aid Highway No. 1, 0.22 mile west of its junction with Town Highway No. 12, and west of Leicester Junction. The rock is a soft white marble with some thin zones of gray to buff dolomite, and black or dark gray Phyllite which breaks into thin plates or slabs. If the Dolomite could be economically separated from the softer rock it would be an adequate rock source; however, the rock has a high limestone-to-dolomite composition and may not be feasible as a crushed rock source. Some trash and rubble are piled randomly on the quarry floor. The close proximity

LEICESTER ROCK DATA SHEET NO. 2

Table II

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHTO		Remarks
						T-3	T-96	
	2	1975	Limestone Marble and Dolomite	Yes	Chip	4.4%	42.7%	<p>of houses and buildings may be a factor to consider for development. Test No. 1 was a 75-foot sample taken along the base of the center of the east wall.</p> <p>Test No. 2 was a 75-foot sample along the south end of the east wall, 100 feet southwest of Test No. 1</p>
3	1-A	1975	Marble	Yes	Chip	4.5%	20.3%	<p>Owner: John Swington. Area is an inactive quarry 0.24 mile south of State Aid Highway No. 1, and 0.14 mile east of its junction with Town Highway No. 12. The rock varied from a gray limestone to a creamy white, fairly soft, but brittle marble. Access is good, but the haul road needs work. There seems to be a considerable amount of rock remaining, but the quarry would have to be dewatered before future development could be carried out.</p> <p>Test No. 1-A was a 75-foot sample taken along a low rock face south of old haul road.</p>
	1-B	1975	Marble	Yes	Chip	4.4%	22.8%	<p>Test No. 1-B was a 75-foot sample taken just northwest of Test No. 1-A.</p>
	2	1975	Marble	Yes	Chip	5.2%	29.8%	<p>Test No. 2 was taken from the nearly vertical 40-foot high wall of a partly worked outcrop near the northeast edge of the feature, 400 feet east of Test No. 1.</p>
	3	1975	Marble	Yes	Chip	6.4%	35.0%	<p>Test No. 3 was taken from the nearly vertical, 35-foot high wall of the outcrop, 60 feet south of Test No. 2.</p> <p>The outcrop is 250 x 70 feet, and rises from level ground (at both ends) to a high point of 40', or more, near the center. Some excavation has been done on this section of the outcrop.</p>

Table II

LEICESTER ROCK DATA SHEET NO. 3

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHTO		Remarks
						T-3	T-96	
4	1	1975	Marble and Limestone	Yes	Random pieces of grout	3.8%	31.9%	Owner: John Swington. Area is a large, water-filled quarry 0.46 mile south of State Aid Highway No. 1, and 0.14 mile east of its junction with Town Highway No. 12. The quarry had vertical walls and was not sampled; however, the is ample material remaining. Test No. 1 was from the south end of grout pile.
	2	1975	Marble and Limestone	Yes	Random pieces of grout	2.7%	28.6%	Test No. 2 was from the north end of grout pile.
5	1-A	1975	Quartzite and Dolomite	No	Chip	2.0%	21.2%	Owner; Alan Monroe. Area is a wooded, low, step-like ridge 0.09 mile east of Town Highway No. 18; access is 0.18 mile south of the junction of Town Highways No. 17 and 18. Access road is crude sugaring road through a marshy area. The rock was quartzite with minor beds of dolomite; it strikes north and dips 60° to 70° to the east. The quartzite was mostly light gray to light brown, with a sub-vitreous luster. It broke with sharp edges, and was shattery in places. The dolomite portion of the exposure was dark gray, phyllitic, and very thin-bedded; it was fissile and shattered very easily. This was very uncharact eristic of other dolomites (such as: the Winooski, Clarend Springs, etc.). The outcrop had a northern part (250' x 100') and was sampled as Test No. 1 (representing a thickness of 30 feet). Test No. 1-A was a 20-foot sample on the west side of the low exposure, 100 feet north of haul road.
	1-B	1975	Quartzite and Dolomite	No	Chip	3.0%	21.3%	Test No. 1-B was a 10-foot sample below Test No. 1-A. Test No. 1-A and 1-B had a total thickness of 30 feet.

Table II

LEICESTER ROCK DATA SHEET NO. 4

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHTO		Remarks
						T-3	T-96	
	2-A	1975	Quartzite and Dolomite	No	Chip	1.6%	23.0%	Test No. 2-A was taken across the 20-foot wide upper ledge, 250 feet south of Test No. 1
	2-B	1975	Quartzite and Dolomite	No	Chip	3.0%	21.3%	Test No. 2-B was taken across the 20-foot wide lower ledge, 100 feet west of Test No. 2-A.
6	1-A	1975	Quartzite	No	Chip	3.6%	25.4%	Owner: Walter Mendoza. Area is long, low step-like series of outcrops trending north-south in mixed woods southeast of the intersection of State Aid No. 2 and Town Highway No. 6. The outcrops are 250 feet east of Town Highway No. 6 and the samples were taken along the strike. The bedding was thin and nearly obscure. The rock was quite hard in the quartzite zones and quite soft in the phyllite zones. The access is good but no material would be sold. Low relief and a lack of material would make this only a minor rock source. There were joints which produced some blocky pieces and some angular or tabular fragments. Test No. 1-A was a 100-foot sample taken southward from 200 feet east of the tennis court.
	1-B	1975	Quartzite	No	Chip	2.5%	25.5%	Test No. 1-B was a 100-foot sample taken southward from Test No. 1-A. The outcrop was 200 feet long with 10-foot high ledges separated by 10 to 20 feet of horizontal, wooded, bedrock control surface.
7	1	1975	Quartzite	No	Chip	2.1%	35.8%	Owner: U.S. Forest Service. Area is a series of outcrops in woods east of Vermont Route 53, extending more than 400 feet southward from north of the Salisbury Town Line. The ledges have obscure bedding which seems to strike north-easterly and dip 15° to 30° to the south. There is a marsh area in a sag east of the western-most set of outcrops

**Table II
Supplement**

LEICESTER PROPERTY OWNERS - ROCK

Map Identification No.

Huntley, H.B. Inc.

2

Lajeunesse, Andre

1

Mendoza, Walter

6

Monroe, Alan

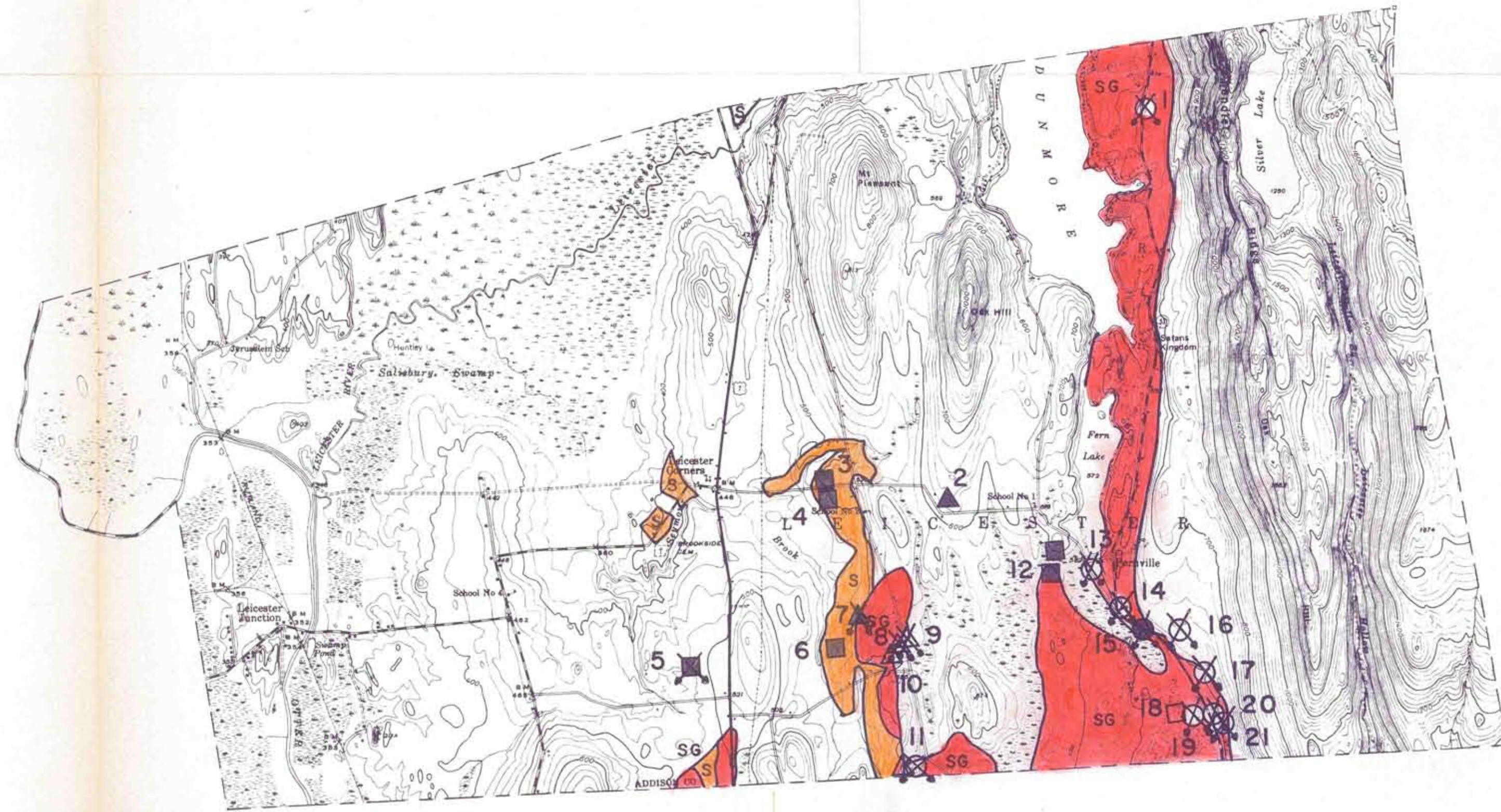
5

Swington, John

3,4

U.S. Forest Service

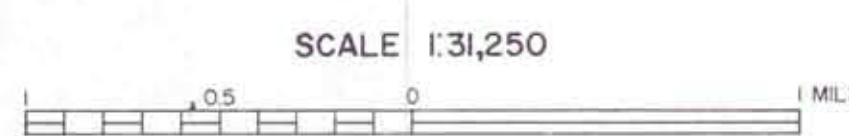
7



LEGEND

- GRAVEL, ACCEPTABLE FOR ITEM 704.05 (gravel for sub-base)
- GRAVEL, DEPLETED OR NOT ACCEPTABLE FOR ITEM 704.05
- △ SAND, ACCEPTABLE FOR ITEM 703.03 (sand borrow and cushion)
- ▲ SAND, DEPLETED OR NOT ACCEPTABLE FOR ITEM 703.03
- GRANULAR BORROW, ITEM 703.05
- MATERIAL NOT ACCEPTABLE FOR ITEM 703.05
- ✕ EXISTING PIT
- SG SAND & GRAVEL DEPOSIT
- S SAND DEPOSIT
- 3 IDENTIFICATION NUMBER (refer to data sheets)

LEICESTER



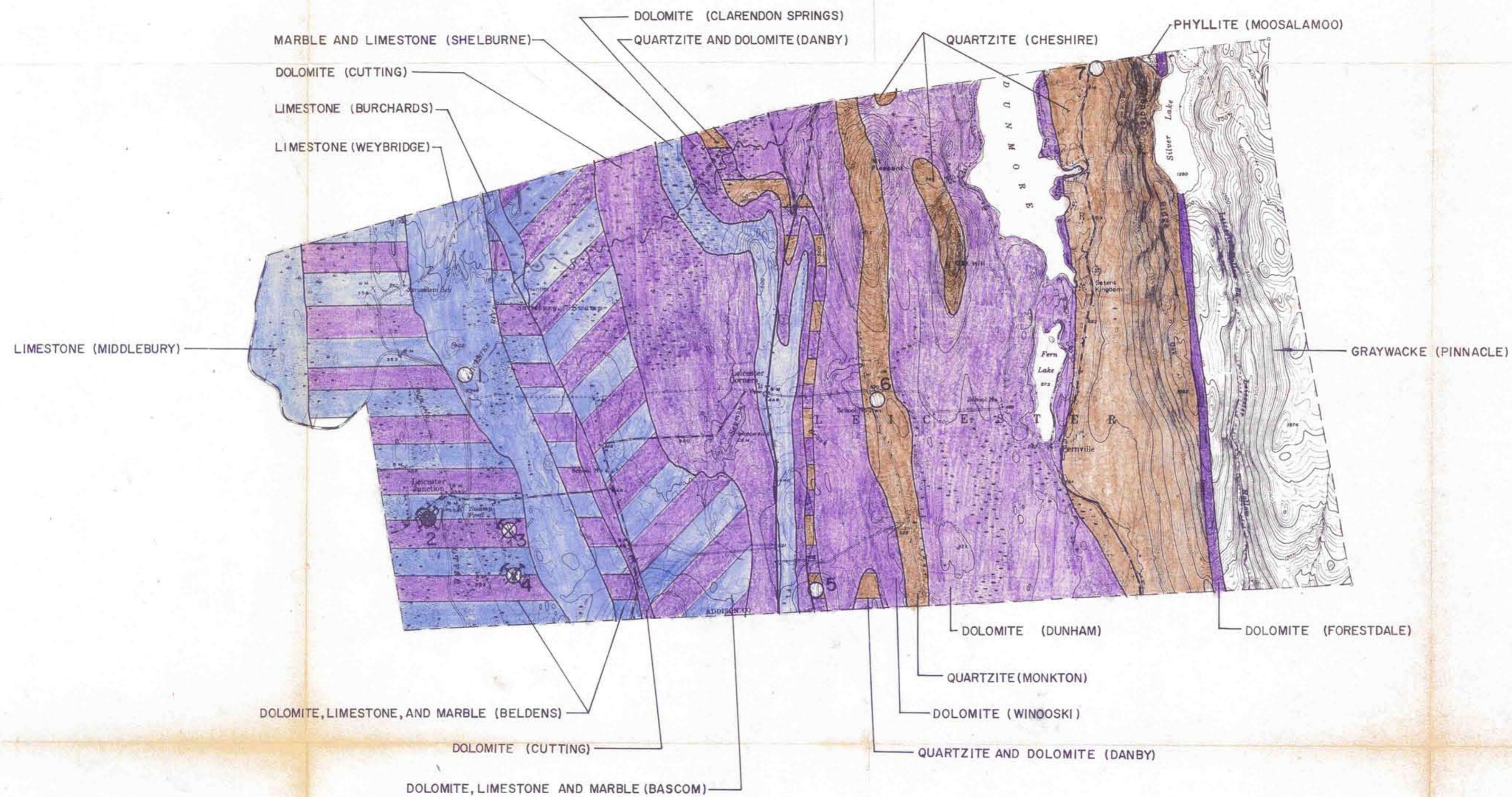
CONTOUR INTERVAL 20 FEET

1976

**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

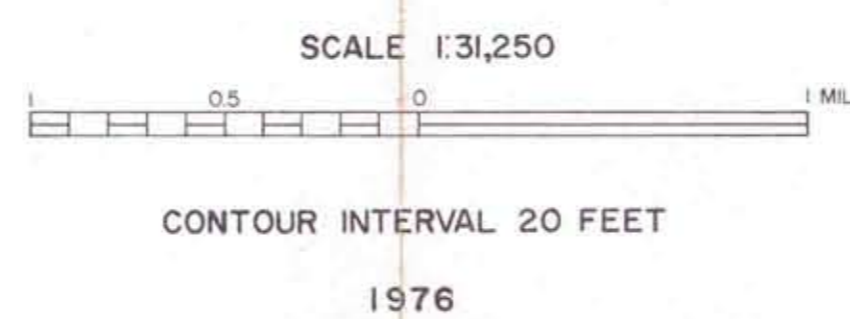
DATE					
BY					



LEGEND

- ROCK, ACCEPTABLE FOR ITEM 704.06 (crushed stone for sub-base)
- ROCK, NOT ACCEPTABLE FOR ITEM 704.06
- ✕ EXISTING QUARRY
- Orange box GRANITE TO DIORITE (light to intermediate igneous rocks)
- Green box AMPHIBOLITE, GABBRO, DIABASE, METADIABASE, GREENSTONE, TRAP DIKES (basic or dark igneous rocks)
- Red box PERIDOTITE, PYROXENITE, SERPENTINITE (ultra-basic igneous rocks)
- Pink box GNEISS
- Brown box QUARTZITE
- Purple box DOLOMITE
- Blue box MARBLE, LIMESTONE
- White box SCHISTS, SLATES, PHYLLITES, SHALES, CONGLOMERATES
- 3 IDENTIFICATION NUMBER (refer to text)

LEICESTER



1976

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

DATE					
BY					