

**SURVEY OF HIGHWAY CONSTRUCTION MATERIALS
IN THE TOWN OF MORRISTOWN, LAMOILLE COUNTY, VERMONT**

Prepared by

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

in cooperation with

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

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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.

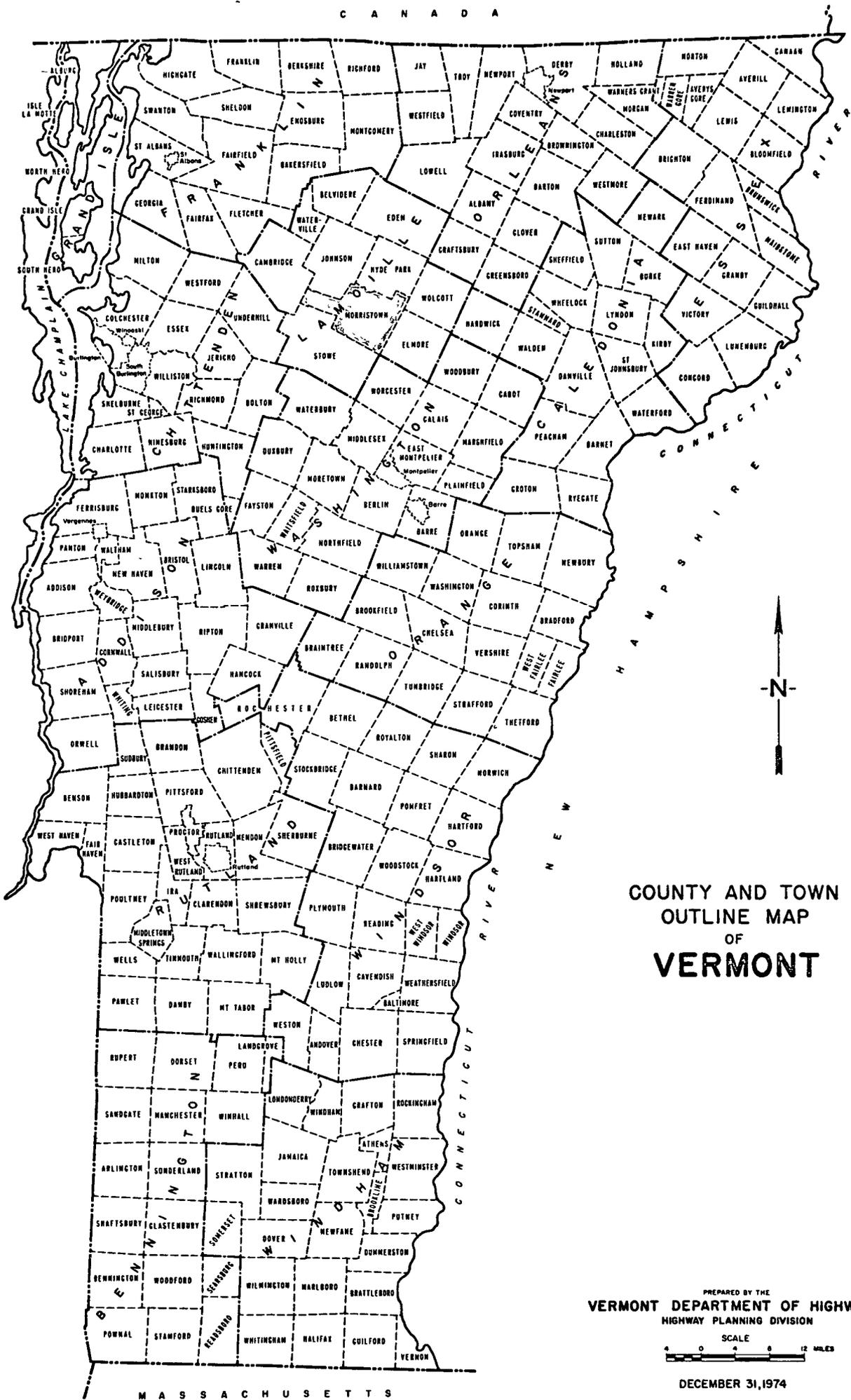
Work sheets, containing more detailed information and a field sketch of the area represented by the Identification Number, and laboratory reports are on file in the Materials Division of the Vermont Department of Highways.

LOCATION

The Town of Morrystown is near the center of Lamoille County in north-central Vermont. It is bounded on the north by Johnson and Hyde Park, on the northeast by Wolcott, on the east and southeast by Elmore, on the south by Stowe, and on the west by Cambridge, (See County and Town Outline Map of Vermont on following page).

The town lies entirely in the Green Mountain physiographic subdivision of the New England Upland with rugged, steep-sided, mountainous terrain. Elevations range from 3,715 feet at the summit of White Face Mountain in the northwestern corner of town, to less than 520 feet where the Lamoille River crosses the Johnson town line in the northern corner of town.

Mud Brook and Beaver Meadow Brook flow eastward into Kenfield Brook which flows east and then north into the Lamoille River. Sterling Brook flows east and then north into the Lamoille River. Sterling Brook flows southeasterly just north of the southern border. Bahannan Brook flows northeasterly into Sterling Brook. Jacob Brook flows northeasterly into the Lamoille River; Centerville Brook and Rodman Brook flow south into Lamoille River. Lawrence Brook and Bedell Brook flow into Ryder Brook which flows northward into Lake Lamoille. The major stream, the Lamoille River, flows northwest into Lake Champlain.



COUNTY AND TOWN
OUTLINE MAP
OF
VERMONT

PREPARED BY THE
VERMONT DEPARTMENT OF HIGHWAYS
HIGHWAY PLANNING DIVISION



DECEMBER 31, 1974

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 rocks underlie Morrystown.

The formations mapped as underlying Morrystown are from west to east: The Hazens Notch schist, quartzite and gneiss; the Underhill schist; the Hyde Park schist member of the Hazens Notch Formation; the Ottauquechee phyllite and quartzite; the Stowe schist; and the Stowe greenstone and amphibolite.

Satisfactory material was sampled at Map Identification No. 1 (Stowe greenstone and amphibolite), No. 2 (Stowe schist), and No. 3 (the Hyde Park schist member of the Hazens Notch Formation). The Hazens Notch Formation yielded unsatisfactory material at Map Identification No. 4 and 6, as did the Ottauquechee Formation at Map Identification No. 5. There were no quarries in town.

The sources are listed most favorable first: Map Identification No. 1, 3 and 2.

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 although granular deposition in the Town of Morristown is widespread, the majority of material is sand; with scattered gravel areas. Unfortunately, many areas having good potential are already developed (houses, business), bisected with multiple property lines (making development nearly impossible), or not available for sale or sampling.

The most promising sources of gravel for Sub-base, Item 704.05 are listed most favorable first: Map Identification Numbers 41, 14, 25, 50, 5 and 30; all but No. 50 are pits. Many areas had samples with good gradation and barely failing wear tests, therefore the material might be modified for future use. The long established pits at Map Identification Numbers 30, 25 and 41 are rapidly approaching depletion.

Areas yielding Sand Borrow and Cushion, Item 703.03 are listed most favorable first: Map Identification Numbers 1, 15, 43, 34 and 36; all but No. 45 are pits. Other areas had acceptable Sand Borrow and Cushion but were not listed because of insufficient material reserves.

Summary of Rock Formations in the Town of Morristown

Hazens Notch Formation: Interbedded carbonaceous and non-carbonaceous quartz-sericite-albite-chlorite schist; grades to quartzite and gneiss.

Hazens Notch Formation (Hyde Park Member): Sericite-quartz-chlorite-albite-magnetite schist, near Hyde Park.

Ottaquechee Formation: Black carbonaceous phyllite or schist containing interbeds of massive quartzite commonly criss-crossed by veins of white quartz; quartzite is dark gray and carbonaceous, light gray, or white; also includes light green quartz-sericite-chlorite phyllite or schist and sericitic quartzite.

Stowe Formation: Quartz-sericite (muscovite-paragonite)-chlorite phyllite and schist; porphyroblasts of albite, garnet, chloritoid, or kyanite are common locally; includes phyllitic graywacke north of Lamoille River. Schist contains abundant segregations of granular white quartz.

Stowe Formation Greenstone and Amphibolite: Epidote-albite-chlorite rocks contain actinolite and hornblende where more metamorphosed.

Underhill Formation: Silvery, gray-green, quartz-sericite-albite-chlorite-biotite-schist containing abundant lenticular segregations of granular white quartz; locally quartz-sericite-albite-chlorite phyllite; porphyroblasts of albite, garnet, and magnetite are common and locally very abundant in gneissic facies in axial anticlines of the Green Mountain anticlinorium.

Glossary of Selected Geologic Terms

Actinolite: A variety of amphibole occurring in greenish masses or bladed crystals.

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

Amphibolite: A green-to-black, somewhat schistose metamorphic rock containing varying amounts of amphibole (i.e., tremolite, actinolite, hornblende, or arfvedsonite).

Anticline: An elongate fold in which the sides or limbs slope downward away from the crest. No size limits are implied, but the term is not generally used for small folds or wrinkles having dimensions of inches or a few feet.

Anticlinorium: A large composite fold consisting of a series of anticlines and synclines which, taken as a group, have the general form of an arch or anticline. The term applies only to relatively large features having a width of at least several miles.

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.

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

Carbonaceous: Containing carbon.

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

Chloritoid: A brittle member of the mica group.

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.

Epidote: A calcium aluminum iron silicate found in rocks as grains or formless masses. It is usually some shade of green, pistachio-green, or yellowish-green.

Facies: The aspect or appearance of a mass of earth material different in one or more ways from the surrounding material.

Fluvial: Pertaining to streams.

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

Glacio-Lacustrine: A term used to denote 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.

Hornblende: A black, dark green, or brown amphibole usually forming prismatic masses in igneous and metamorphic rocks.

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.

Kyanite: A blue, aluminum silicate occurring usually in thin-bladed crystals, or crystalline aggregates.

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

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.

Plagioclase: The common rock-forming feldspar of the albite-anorthite isomorphous series.

Porphyroblasts: Large crystals formed in the fine-grained matrix of a metamorphic rock by heat, pressure, and solutions. The crystals form later than the parent rock.

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.

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.

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.

Bibliography

- The Glacial Geology of Vermont; David P. Stewart; 1961; Vermont Geological Survey Bulletin No. 19.
- The Surficial Geology and Pleistocene History of Vermont; David P. Stewart; and Paul Mac Clintock; 1969; Vermont Geological Survey Bulletin No. 31.
- Soil Survey (Reconnaissance) of Vermont, J.J. Latimer; 1930; Bureau of Chemistry and Soils, United States Department of Agriculture.
- Soil Exploration and Mapping; 1950; Highway Research Board, Bulletin No. 28.
- Survey of Highway Aggregate Materials in West Virginia; December, 1959; Engineering Station, West Virginia University, Morgantown, West Virginia.
- Materials Inventory, Bangor Quadrangle, South Half; September, 1959; University of Maine.
- Glacial Geology and the Pleistocene Epoch, R.F. Flint; 1947; John Wiley and Sons, Inc.
- A Handbook of Rocks, J.F. Kemp; June, 1946; D. Van Nostrand Company, Inc.
- Rock and Rock Minerals, L.V. Pirsson; June, 1949; John Wiley and Sons, Inc.
- Glossary of Selected Geologic Terms, W.L. Stokes and D.J. Varnes; 1955; Colorado Scientific Proceedings, Vol. 16.
- Centennial Geological Map of Vermont; C.G. Doll; 1961
- Surficial Geological Map of Vermont; C.G. Doll; 1970.
- Lexicon of Geologic Names of the United States for 1936-1960; Grace C. Keroher; 1966; Geological Survey Bulletin 1200, United States Department of the Interior.
- Hyde Park Quadrangle, Vermont; Geological Survey, United States Department of the Interior; 1953.**
- Montpelier Quadrangle, Vermont; Geological Survey, United States Department of the Interior; 1921, (reprinted 1951).**
- Mount Mansfield Quadrangle, Vermont; Geological Survey, United States Department of the Interior; 1948.**

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

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 1

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	1	1975	0-4	----	Yes	100	100	100	90	68	61	-----	----	Owner: Omer Brosseau. Area is high L-shaped knoll in pasture with small excavations on southern edge, north of access road. The town started to draw out material but never took much. Pasture is fenced in and bounded by railroad tracks on eastern edge. Material from tests No. 2, 3, and 4 had winter sand quality appearance. Excavations are 0.10 mile east of State Aid Highway No. 2., 0.48 mile north of Town Highway No. 8 junction with State Aid No. 2. Test No. 1 was in floor of excavation atop knoll on southeast end. Material was: 0'-2', pebbly sand; 2'-4', fine gravel; bottoms in silt.
	2	1975	0.5-11	0-0.5	No	100	100	100	90	4	2	-----	Sand	Test No. 2 was atop knoll, northeast edge, 190 feet north of Test No. 1. Material was: 0.5'-2.5', pebbly sand; 2.5'-11', sand; bottoms in sand.
	3	1975	0.5-8	0-0.5	No	100	100	91	84	5	4	-----	Sand	Test No. 3 was atop knoll, western edge, 265 feet west of Test No. 2. Material was: 0.5'-4', pebbly sand; 4'-11', sand; bottoms in sand.
	4	1975	0.5-12	0-0.5	No	100	100	93	88	4	2	-----	Sand	Test No. 4 was atop knoll, southwest edge, 150 feet southwest of

TABLE I

MORRISTOWN 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			
														Test No. 2. Material was: 0.5'-1. fine gravel; 1.5'-3', pebbly sand; 3'-3.5', gravel; 3.5'-8', pebbly sand; 8'-12', sand; bottoms in sand.
2	1	1975	1-5.5	0-1	Yes	89	78	55	38	13	8	17.8%	Gravel	Owner: Willis Hicks. Area is low pit with extension to the south in to flat meadow, to the north into sloping pasture, and to the east into knoll running from pit to owner's house. A power line runs diagonally across pasture just east of pit; a swamp lies west of the pit. Owner did not want to sell material at this time. Pit is 0.20 mile north of Town Highway No. 9, 0.27 mile west of State Aid Highway No. 2 junction with Town Highway No. 9. Test No. 1 was in southeast face of pit. Material was: 1'-5.5', gravel; bottoms in silt.
	2	1975	1-14	0-1	Yes	100	97	78	65	49	45	-----	----	Test No. 2 was in northeast face of pit. Material was: 1'-2', gravel; 2'-7', silt; 7'-9.5', gravel; 9.5'-12', silt; 12'-14', gravel; bottoms in sloughed material.
	3	1975	2-6	0-2	Yes	100	98	67	45	14	6	24.0%	Gravel	Test No. 3 was in northern face of pit. Material was: 2'-6', gravel and sandy gravel; bottoms in silt.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 3

ap dent. o.	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			
3	1-A	1975	1-7	0-1	Yes	98	87	67	48	7	4	18.5%	Gravel	Owner: O'Neal Demars, Jr. Formerly: Hick's Pit. Area is pit in western edge of field with random topsoil and stripping piles on face. There is telephone line running east-west across pit and field with power line running nearly parallel, 50 feet south of it. There are several tree lines in field and a down slope on southern and western edges. Owner bought land for house lots, but would sell material for right price. Pit is located 0.09 mile southwest of Town Highway No. 93, 0.19 mile west of Town Highway No. 11 junction with No. 93. Test No. 1-A was in eastern face of pit. Material was: 1'-7', gravel bottoms in test No. 1-B.
	1-B	1975	7-14	----	Yes	100	100	100	100	40	5	-----	Gran. Borrow (Sand)	Test No. 1-B was below Test No. 1-A. Material was: 7'-14', sand and fine sand; bottoms in fine sand.
	2	1975	1-12	0-1	Yes	100	95	86	84	22	7	-----	Sand	Test No. 2 was in southeast face of pit. Material was: 1'-4', sand and fine sand; 4'-5', sandy gravel; 5'-8', gravel; 8'-9', pebb sand; 9'-12', sand and fine sand; bottoms in fine sand.
	3	1975	0-3.5	-----	Yes	100	100	92	76	7	4		Sand	Test No. 3 was in upper shelf of pit floor. Material was: 0'-3.5

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 4

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 VIID Spec.	Remarks
						2"	1-1/2"	1/2"	#4	#100	#200			
	4	1975	1.5-11	0-1.5	No	100	100	100	98	35	6		Gran. Borrow (Sand)	pebbly sand; bottoms in clay and water. Test No. 4 was in field, 100 feet east of Test No. 1. Material was: 1.5'-5', sand and fine sand; 5'-11', fine sand and silty sand; bottoms in silty sand.
	5	1975	1.5-11	0-1.5	No	100	89	73	57	6	2	20.6%	Gravel	Test No. 5 was in field, 115 feet southeast of Test No. 2. Material was: 1.5'-3', sand and fine sand, 3'-11', gravel; bottoms in gravel.
	6	1975	1.5-12	0-1.5	No	100	100	100	95	8	2		Sand	Test No. 6 was in field 135 feet northeast of Test No. 5. Material was: 1.5'-8', fine sand; 8'-12', sand, bottoms in sand.
4	1	1975	1-8	0-1	Yes	100	100	99	98	91	80	-----	-----	Owner: Town of Morristown. Formerly: Addy Mathews. Area is 135 x 65 foot nearly depleted pit bounded on the north by cemetery, west by property and tree line, and 75 foot extension south running to property line. Two high tension power lines form a "v" over top of pit. Material is not available; town is going to smooth over pit and use for cemetery extension in future. Pit is 0.03 mile west of State Aid Highway No. 2, 0.13 mile southwest of Town Highway No. 10.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 5

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	1-9	0-1	Yes	100	100	100	99	96	90	-----	-----	<p>junction with State Aid No. 2. Test No. 1 was in southern face of pit. Material was: 1'-8', silt; bottoms in silt with clay traces.</p> <p>Test No. 2 was in western face of pit. Material was: 1'-9', silt; bottoms in silt.</p>
5	1-A	1975	0-24	-----	Yes	100	95	78	61	28	12	-----	Sand	<p>Owner: Tom Hirchak. Formerly: Willis Hicks. Area is high pit face trending north-south along western side of access road. Southern end of face was overgrown while northern end was currently being hauled out of by building contractors. Extension is westward into wooded, high knolls with several small streams flowing eastward through it. Access road goes through owner's dooryard, and Lamoille River flows on eastern side of it. Owner would not allow backhoe testing in nearby pastures or mead. Pit is 0.33 mile north of Town Highway No. 10, end. Test No. 1-A was in northwest face of pit. Material was: 0'-4', fine sand; 4'-6', gravel; 6'-8', silty sand; 8'-9', fine sand; 9'-12', gravel and fine gravel; 12'-16', fine sand; 16'-20', silty gravel; 20'-24', pebbly sand and sand; bottoms in Test No. 1-B.</p>

TABLE I

MORRISTOWN 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	24-44	-----	Yes	100	100	93	79	32	12	-----	Gran. Borrow (Sand)	Test No. 1-B was below Test No. 1-A. Material was: 24'-25', fine gravel; 25'-28', fine sand; 28'-29', silty sand; 29'-35', fine sand and sand; 35'-40', gravel; 40'-43', silty sand; bottom in Test No. 1-C.
	1-C	1975	44-65	----	Yes	80	79	54	34	13	8	18.7%	Gravel	Test No. 1-C was below Test No. 1-B. Material was: 44'-48', gravel; 48'-50', fine sand, 50'-65' gravel; bottoms in sloughed material.
	2-A	1975	1.5-28	0-1.5	Yes	100	100	100	91	49	23	-----	----	Test No. 2-A was in west face of pit, 80 feet south of Test No. 1. Material was: 1.5'-5', fine sand; 5'-6.5', gravel; 6.5'-8 sand; 8.5'-10.5', fine sand; 10.5'-14', silt and silty sand; 14'-14.5', gravel; 14.5'-16', silty sand; 16'-19', fine sand; 19'-28', silty sand; bottoms in Test No. 2-B.
	2-B	1975	28-54	----	Yes	100	100	88	77	45	24	-----	----	Test No. 2-B was below Test No. 2-Material] was: 28'-30', sand; 30'-35', silty sand; 35'-38', silty gravel; 38' -42', stoney sand; 42'-46', gravel; 46'-49', silty sand; 49'-52', silty sandy grave; 52'-54', gravel; bottoms in sloughed material.
	3-A	1975	2.5-28	0-2.5	Yes	100	100	100	92	60	45	-----	----	Test No. 3-A was in old southwest face of pit, 190 feet south

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 7

Cap 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			
	3-B	1975	28-55	----	Yes	100	81	70	63	81	57	-----	----	<p>of Test No. 2. Material was: 2.5'-3.5', silty gravel; 3.5'-5', sand, 5'-10', fine sand; 10'-15', fine sand and silt; 15'-16', gravel; 16'-28', fine sand with silt traces; bottoms in Test No. 3-B.</p> <p>Test No. 3-B was below Test No. 3-A. Material was: 28'-30', sandy gravel; 30'-55', intermixed layers of silt, silty sand, and fine sand; bottoms in sloughed material and 8-10 foot boulders.</p>
6	1	1975	1-8	0-1	Yes	100	95	89	78	11	6	-----	Sand	<p>Owner: Otis Arnold (Deceased) (Soon to be Mrs. Mildred Foss property with Arthur Hicks owning right-of-way). Area is old depleted pit with multiple power and telephone lines transversing it. Two driveways run through the pit as do several property lines. Test No. 1 was taken in land belonging to Mrs. Foss but extension was immediately into John Fowler's property. Mr. Fowler would not allow backhoe digging in his pasture so test was taken to show what material was there. Pit is 0.05 mile southwest of Vermont Route 15 junction with No. 11. Test No. 1 was in eastern face of pit. Material was: 1'-3.5', gravelly sand; 3.5'-7', sand; 7'-8', pebbly sand; bottoms in sloughed material.</p>

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 8

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			
7	1	1975	1-6	0-1	Yes	100	100	100	95	34	10	-----	Gran. Borrow (Sand)	Owner: Miss Eva Perry. Area is shallow, 60 x 80 foot pit with house trailer and shed on floor. Pit may be nearly depleted as eastern extension is into driveway and northern extension has another trailer on it. Pit is 150 feet north of Town Highway No. 11; 0.21 mile northwest of Vermont Route 15 junction with No. 11. Test No. 1 was in northeast face of pit. Material was: 1'-1.5' gravel; 1.5'-6', fine sand; bottoms in fine sand.
8	1	1975		NO	SAMPLES				TAKEN					Owner: Harry Alexander. Formerly: George Paine. Area is old depleted pit with very limited extension. There is pond covering most of floor, and trees on faces. Northeast end has junk dumped in it, and telephone line runs over center of pit. Pit is 50 feet northwest of access road, 0.07 mile southwest of Vermont Route 15 and 0.10 mile northwest of Town Highway No. 11 junction with Route 15.
9		1975		NO	SAMPLES				TAKEN					Owner: Phil Houle. Formerly: George Paine. Area is completely depleted portion of pit with grass and trees on faces and floor and

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 9

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 VIID Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
														water table only 2-3 feet below surface. Extensions would be into highways; owner wants to fill in and locate a business on site. It is on southeast side of access road, 0.07 mile southwest of Vermont Route 15, 0.10 mile northwest of Town Highway No. 11 junction with Route 15.
10		1975		NO	SAMPLES									Owner: Raymond Overton. Formerly: George Paine. Area is depleted, partially filled-in portion of a pit. Owner has leach field in flood and is filling in for additional parking to go with business. It is 0.16 mile south of Vermont Route 15 via access road through map Identification No. 9, 0.10 mile northwest of Town Highway No. 11 junction with Route 15.
11	1	1975	1-13	0-1	No	100	100	100	100	49	10		Gran. Borrow (Sand)	Owner: Raeburn Bates. Area is large "Desert-Like" field with only scattered planted pines growing. It is surrounded by heavy woods with Hyde Park-Morristown town line on northeast end. Area access is 0.06 mile through owner's dooryard northeast of Town Highway No. 77 end. Test No. 1 was in far northeast corner of rolling field with planted pine. Material was:

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 10

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	1-12	0-1	No	100	100	100	100	49	16	-----	-----	1'-8', fine sand; 8'-13', sand; bottoms in sand. Test No. 2 was 190 feet southwest of Test No. 1. Material was: 1'-9', fine sand and sand; 9'-12', sand; bottoms in sand.
	3	1975	1.5-11	0-1.5	No	100	100	100	100	33	6	-----	Gran. Borrow (Sand)	Test No. 3 was 160 feet south west of Test No. 2. Material was: 1.5'-11', sand; bottoms in sand.
12		1975			NO		SAMPLE			TAKEN				Owner: Wayne Blaisdell. Formerly: Ernest Bailey. Area is 50 x 235 foot overgrown nearly depleted pit filled with junk cars. Extension to the northwest has pig pen on it with property line at 75 feet; to the northeast there is owner's house, shed, and barn with pasture. Owner says he has little enough pasture and would not allow testing or as long as he owns it would not sell. Pit is 0.16 mile northwest of Vermont Route 100, 0.075 mile southwest of Vermont Route 15 junction with Route 100.
13	1	1975	0-18	----	Yes	100	100	100	91	4	2	-----	Sand	Owner: Arthur Goodwin. Formerly: Ernest Goodwin. Area is depleted pit face with extension into floor of Map Identification No. 12 pit. Pit is 0.03 mile northeast

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 11

Tap 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			
														of Town Highway No. 84 end. Test No. 1 was in northeast face of pit. Material was: 0'-6', gravelly sand; 6'-18'; sand; bottoms in sand.
14	1	1975	1-8	0-1	Yes	79	71	54	40	6	4	17.8%	Gravel	Owner: Pratt-Read and Co. Formerly: Atlas Plywood Co. Area is bowl-shaped pit in northeast corner of field at edge of gully. Extension would be to northwest into mill yard. Pit is 0.17 mile northeast of company parking lot, 0.26 mile west of Vermont Route 100 via private road, and 0.10 mile north of Vermont Route 100 junction with Town Highway no. 16. Test No. 1 was in north face of pit. Material was: 1'-8', gravel; bottoms in same.
	2	1975	1-9	0-1	Yes	62	56	42	31	9	6	19.0%	Gravel	Test No. 2 was in west face of pit, 80 feet southwest of Test No. 1. Material was: 1'-9', gravel; bottoms in same.
15	1	1975	1-9	0-1	Yes	100	100	100	99	9	2	-----	Sand	Owner: Jim Cram. Area is three pits on northwest side of Town Highway No. 18. There was high tension line over wooded western extension, and Morristown-Hyde Park town line on northern edge of northern pit, forming property line with Dr. Beam Pit. The

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 12

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 VIII D Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
														northern pit is 0.06 mile and middle pit is 0.02 mile northeast of Town Highway No. 18 and 19 junction. The southern excavation is just northwest of road junction. Test No. 1 was in northeast face of small excavation. Material was: 1'-9', sand and fine sand; bottoms in same.
	2	1975	0.5-12	0-0.5	Yes	100	90	90	83	29	8		Sand	Test No. 2 was in southwest face of middle pit. Material was: 0.5'-3', gravel; 3'-12', sand with some stones, bottoms in sloughed material.
	3-A	1975	2-25	0-2	Yes	100	93	93	86	36	10		Gran. Borrow (Sand)	Test No. 3 A was in western face of middle pit. Material was: 2'-4', gravel; 4'-25', sand with fine sand traces; bottoms in sloughed material.
	4	1975	2-13	0-2	Yes	100	90	76	63	17	8	16.0%	Sand	Test No. 4 was in southwest face of northern pit. Material was: 2'-13', sandy gravel with sand seams; bottoms in sand.
	5-A	1975	0-18	----	Yes	100	100	91	79	15	10	15.0%	Sand	Test No. 5 A was in west-north-west face of northern pit. Material was: 0'-10', gravel; 10'-12', sand, 12'-18', gravel; bottoms in Test No. 5-B.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 13

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			
	5B	1975	18-33	---	Yes	100	100	96	92	26	7	-----	Sand	Test No 5B was below Test No. 5A. Material was: 18'-33', sand with some fine sand and random, 3" to 4" silt layers; bottoms in sloughed material.
16	1	1975	0-22	----	Yes	100	100	100	100	36	10	-----	Gran. Borrow (Sand)	Owner: Rodney Lanphear. Area is large pit with narrow wooded strip between it and pasture extension. Pasture is low knolled with several gulleys, tree lines, and ledge showing in northwestern edge. Pit is 0.04 mile northeast of Vermont Route 15, 0.05 mile southeast of Town Highway No. 17 junction with Vermont Route 15. Test No. 1 was in northeast face of pit. Material was: 0'-23', fine sand and sand; bottoms in sloughed material.
	2	1975	1-20	0-1	Yes	100	100	100	96	31	9	-----	Gran. Borrow (Sand)	Test No. 2 was in north face of pit, 95 feet southwest of Test No. 1. Material was: 1'-4', pebbly sand; 4'-12', sand and pebbly sand with a few 2"-3" gravel layers; 12'-16', grey till; 17'-20', fine sand; bottoms in wet, grey, clayey silt with angular stones.
	3	1975	1-11	0-1	No	100	100	100	92	4	2	-----	Sand	Test No. 3 was in southeast corner of pasture, 100 feet north-east of pit face. Material was:

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 14

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 VIID Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	4	1975	1-12	0-1	No	100	100	100	98	16	6	-----	Sand	1'-2.5', pebbly sand; 2.5'-10', sand; 10'-11', fine sand; bottoms in fine sand. Test No. 4 was in east-northeast edge of pasture, 300 feet north of test No. 3. Material was: 1'-12', sand; bottoms in same.
	5	1975	1-8	0-1	No	100	100	100	100	90	86	-----	-----	Test No. 5 was atop small knoll in pasture, 360 feet northwest of Test No. 4. Material was: 1'-8', silt; bottoms on ledge or large boulders.
	6	1975	1-5	0-1	No	100	100	100	76	65	22	-----	-----	Test No. 6 was 325 feet northwest of Test No. 3. Material was: 1'-5', stoney silt; bottoms on ledge.
17	1	1975	1-14	0-1	Yes	100	100	87	82	70	30	-----	-----	Owner: Wayne Williams. Area is 65 x 100 foot, nearly depleted pit with swampy areas on floor. Southern extension is very close to R.H. Williams (father) property line. Pit is 50 feet south of Vermont Route 15A, 0.36 mi west of Town Highway No. 22 junction with Route 15A. Test No. 1 was in southern face of pit. Material was: 1'-6', fine sand; 6'-14', stoney sandy silt; bottoms in sloughed material and swamp.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 15

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
18	1	1975	1.5-10	0-1.5	No	100	100	100	96	88	40	-----	-----	Owner: Phil Keith. Area is large pasture, with low knolls and ridges, sloping to the north. There were some swampy areas, and a small stream in pasture. Owner would not give permission to dig in good looking nearby meadows. Pasture was 0.05 mile northeast of Town Highway No. 21 end. Test No. 1 was on side of ridge, 265 feet northwest of Town Highway NO. 21. Material was: 1.5'-4', silty sand; 4'-8', fine sand; 8'-10', sandy silt with some 14"-18" boulders.
	2	1975	1.5-8	0-1.5	No	100	100	100	84	69	52	-----	-----	Test No. 2 was in lower flat pasture, 980 feet northeast of Town Highway No. 21. Material was: 1.5'-3', gravel; 3'-8', silt; bottoms on ledge or large boulders.
	3	1975	2-6	0-2	No	100	100	100	100	82	73	-----	-----	Test No. 3 was in edge of pasture, 280 feet northwest of Test No. 2. Material was: 2'-3', fine gravel; 3'-6', clayey silt; bottoms in clayey silt and boulders.
19	1	1975	0-10	-----	Yes	90	85	60	45	48	37	10.8%	----	Owner: R.H. Williams. Formerly: Albert Nadeau. Area is large pasture with old, overgrown, partially smoothed-over pit on west end of long, low ridge. Area south of

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 16

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			
														pit has had 10'-12' of fill dumped in it and smoothed over. Pit floor had piles of strippings and whole area was crossed by fences. Pit is 0.23 mile southwest of Vermont Route 15A, 0.76 mile west of Vermont Rte. 15 junction with Route 15A. Test No. 1 was in old pit floor, 0.27 mile northwest of Vermont 15A. Material was: 1'-2.5', stoney silt; 2.5'-3', gravel; 3'-3.5', silt; 3.5'-10', silty coarse gravel; bottoms in silty coarse gravel.
	2	1975	1-11	0-1	No	89	82	73	59	56	40	-----	-----	Test No. 2 was in pasture near fence line, 205 feet southeast of Test No. 1. Material was: 1'-3', coarse gravel; 3'-11', stoney silty sand; bottoms in stoney silty sand.
	3	1975	1-10	0-1	No	100	100	100	57	58	44	-----	---	Test No. 3 was atop low ridge, 335 feet east of Test No. 1. Material was: 1'-10', stoney silty sand; bottoms in same.
	4	1975	1-8	0-1	No	100	100	81	57	56	44	-----	----	Test No. 4 was in pasture, 300 feet northeast of Test No. 3. Material was: 1'-2.5', silt; 2.5'-8', gravelly silt; bottoms on ledge or large boulder.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 17

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
20		1975			NO		SAMPLE			TAKEN				Owner: Village of Morrisville. Area is old depleted pit face with rest-room facility building on northeast extension, and high school recreation field on eastern extension. Village has equipment and sand stored in area. Pit is 0.10 mile north of Vermont Route 12, 0.60 mile east of Vermont Route 15A junction with Route 12.
21	1	1975	0.5-11	0-0.5	Yes	100	100	100	96	12	3	-----	Sand	Owner: Richard Godfrey. Formerly: Farr Pit. Area is triangular-shaped portion of old pit. There is some worn out construction equipment and topsoil piles on floor. Extension to northeast from old pit face has house trailer on it. Area is 50 feet southeast of Farr Avenue and 0.14 mile southwest of Town Highway No. 36 junction with Farr Avenue. Test No. 1 was in center of old pit floor. At northeast end. Material was: 0.5'-11', sand; bottoms in sand.
22	1	1975	1-18	0-1	Yes	100	100	100	95	6	3	-----	Sand	Owner: Greaves Farms, Inc. Area is large, irregular shaped pasture with pit and remains of old Farr Pit. There are strippings and topsoil piles on all extensions, and a wooded down-slope on southern and western edges with property line to the north. Pit is 0.09 mile

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 18

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				
														south of Farr Avenue, 0.14 mile southwest of Town Highway No. 36 junction with Farr Avenue. Test No. 1 was in southern face of pit. Material was: 1'-18', sand; bottoms in silty sand.	
	2	1975	1-14	0-1	Yes	100	100	100	98	7	3	-----	Sand	Test No. 2 was in northwest face of pit. Material was: 1'-14', sand; bottoms in sloughed material.	
	3	1975	0-3.5	---	Yes	100	100	100	98	14	9	-----	Sand	Test No. 3 was in pit floor at southwest end of pit. Material was: 0'-3.5', sand; bottoms in clay.	
	4	1975	1-9	0-1	No	100	100	100	95	5	3	-----	Sand	Test No. 4 was in pasture at southeast edge by tree line. Material was: 1'-2', pebbly sand; 2'-9', sand bottoms in sand. Hole caved very easily.	
	5	1975	1-10	0-1	No	100	100	82	61	7	4	-----	Sand	Test No. 5 was in pasture at southwest edge, 270 feet west of Test No. 4. Material was: 1'-3', fine sand; 3'-7', fine gravel; 7'-8', pebbly sand; 8.5'-10', sand; bottoms in sand.	
23	1	1975	1-10	0-1	Yes				SAMPLE					LOST	Owner: O'Neal Demars, Jr. Area is large flat pasture truncated by Farr Avenue, with 40 x 55 foot pit on northwest edge. Field is remnant of Farr Pit after 10'-12' lift of material was drawn out. Owner would not consider selling

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 19

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			
														any material. There was barn and swimming pool on northeast edge of pasture with several fences in and around field. Pit is 0.09 mile west of Farr Avenue, 0.17 mile southwest of Town Highway No. 36 junction with Farr Avenue. Test No. 1 was in east-southeast face of small pit. Material was; 1'-3', sand and pebbly sand; 3'-8', sand and fine gravelly sand; 8'-10', sand and pebbly sand; bottoms in sand.
	2	1975	0.5-10	0-0.5	Yes	100	100	100	98	7	4	-----	Sand	Test No. 2 was in old pit floor, 130 feet northeast of old face. Material was: 0.5'-10', sand; bottom in sand.
	3	1975	0.5-11	0-0.5	No	100	100	100	93	27	5	-----	Sand	Test No. 3 was in pasture 150 feet southeast of Test No. 1. Material was: 0.5'-7', pebbly sand; 7'-11', fine sand; bottoms in fine sand.
24	1	1975	1.5-24	0-1.5	Yes	100	100	90	75	40	18	-----	-----	Owner: Richard Godfrey. Formerly: Warren Magoon. Area is multi-pitted field with very little if any extension to the west. High tension power line crosses area, and field slopes west to east. Pits have two accesses 0.06 mile apart on northwest side of State Aid Highway No. 2, 0.27 mile north of Town Highway No. 33 junction with State Aid Highway No. 2. Test

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 20

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				
															was in southwest face of upper pit, 215 feet west of State Aid Highway No. 2. Material was: 1.5'-4', fine gravel; 4'-10', sand and fine sand layers; 10'-11' gravel; 11'-13', silt gravel; 13'-24', sand and gravelly sand; bottoms in sloughed material.
	2A	1975	2-18	0-2	Yes	96	92	70	50	10	5	27.8%	Gran. Borrow (Gravel)	Test No. 2A was in west face of upper pit. Material was: 2'-15', gravel; 15'-18', fine gravel; bottom in Test No. 2B.	
	2B	1975	18-34	---	Yes	94	91	69	50	35	26	20.0%	---	Test No. 2B was in northwest face of upper pit. Material was: 18'-21', gravel; 21'-34', silty sandy gravel; bottoms in sloughed material.	
	3	1975	1.5-9	0-1.5	Yes	81	81	72	59	26	15	23.8%	Gran. Borrow (Gravel)	Test No. 3 was in west face of northern pit area, 100 feet west of State Aid Highway No. 2. Material was: 1.5'-9', sandy gravel; bottoms in sloughed material.	
	4	1975	2-18	0-2	Yes	100	97	77	62	24	14	23.8%	Gran. Borrow (Sand)	Test No. 4 was in north-northwest face of northern pit area, 125 feet west of State Aid Highway No. 2. Material was: 2'-15', gravelly sand 15'-18' fine sand and silt with stones; bottoms in silt.	
	5	1975	1-9	0-1	Yes	90	70	62	48	22	15	25.5%	Gran. Borrow (Gravel)	Test No. 5 was in west face of lower pit, 100 feet west of State	

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 21

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			
	6	1975	0.5-12	0-0.5	Yes	91	88	67	49	8	5	24.4%	Gravel	Highway No. 2. Material was: 1'-7', gravel; 7'-9', sandy gravel; bottoms on ledge or large boulder. Test No. 6 was in pit floor, 55 feet east of Test No. 1. Material was: 0.5'-12', fine sandy gravel, bottoms in same.
25	1	1975	5-30	0-5	Yes	97	82	66	53	23	8	23.2%	Gran. Borrow (Gravel)	Owner: Richard Godfrey. Formerly: Warren Magoon. Area is large pit in field 0.03 mile northwest of State Aid Highway No. 2. Pit has approx. 50 foot extension left to the northwest, Map Ident. No. 24 lies to northeast, and planted pine and other trees to the southwest. There are topsoil, strippings, and some construction material on pit floor and face. Pit is 0.13 mile northeast of Town Highway No. 33 junction with State Aid Highway No. Test No. 1 was in northwest face of pit. Material was: 5'-6', fine gravel; 6'-7', fine sand; 7'-10', gravel; 10'-12', sandy gravel; 12'-13', silty gravel; 13'-15', sand; 15'-16', pebbly sand; 16'-20', sand; 20'-21', gravel; 21'-25', silty sandy gravel; 25'-27', silty gravel; 27'-30', sand; bottom in sand and pebbly sand.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 22

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	2.5-25	0-2.5	Yes	86	86	68	45	13	7	24.4%	Gravel	Test No. 2 was in western face of pit, 110 feet southwest of Test No. 1. Material was: 2.5'-3.5', fine sand; 3.5'-8', fine gravel; 8'-10', sandy gravel; 10'-15', coarse gravel; 15'-20', sandy gravel; 20'-21', silt gravel; 21'-25', pebbly sand and gravelly sand; bottoms in sloughed material.
	3	1975	1.5-25	0-1.5	Yes	78	70	55	43	11	6	28.8%	Gran. Borrow (Gravel)	Test No. 3 was in southwest face of pit, 120 feet southwest of Test No. 2. Material was: 1.5'-5', fine gravel; 5'-7', sandy gravel; 7'-14', coarse gravel; 14'-16', sand; 16'-17', pebbly sand; 17'-25', coarse gravel; bottoms in coarse gravel.
	4	1975	1-8	0-1	Yes	90	86	74	63	21	8	23.6%	Gran. Borrow (Gravel)	Test No. 5 was in southwest end of pit floor, 20 feet southeast of Test No. 3. Material was: 1'-2', silt; 2'-6', fine gravel; 6'-8', gravel; bottoms in silt and water.
26	1A	1975	1-12	0-1	Yes	100	100	100	98	17	4	-----	Sand	Owner: Richard Godfrey. Formerly: Magoon and Manosh. Area is old pit with little extension. Western face and floor have junk dumped on them; property line with H.A. Manosh is close to southern face. Pit is 0.06 mile southeast of Town Highway No. 33, 0.21 mile southwest of State Aid Highway No. 2 junction with No. 33. Test No. 1A was in southern face of pit. Material was: 1'-5', fine

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 23

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			
	1B	1975	12-30	-----	Yes	96	81	60	49	13	8	28-6%	Gran. Borrow (Gravel)	sand; 5'-12', sand; bottoms in Test No. 1 B. Test No. 1B was below Test No. 1A. Material was: 12'-22', gravel; 22'-24', pebbly sand; 24'-30', sand, bottoms in sloughed material.
27	1	1975	0-24	-----	Yes	100	100	100	93	16	9	-----	Sand	Owner: H.A. Manosh. Area is pit face with narrow wooded extension to northeast ending in Map Identification No. 26. There is stream on southern edge of pit and Ryder Brook on eastern edge. Pit is 0.20 mile south of Town Highway No. 33, 0.24 mile southwest of State Aid Highway No. 2 junction with No. 33. Test No. 1 was in northern face of excavation. Material was: 0'-4', fine sand; 4'-8', gravel; 8'-20', fine sand; 20'-24', silty sand; bottoms in sloughed material.
	2	1975	1-16	0-1	Yes	100	100	100	94	33	16	-----	-----	Test No. 2 was 120 feet west of Test No. 1 on side slope. Material was: 1'-4', gravel; 4'-12', sand and fine sand; 12'-18', silty sand; 14'-16', fine sand; bottoms in sloughed material.
28	1	1975	1.5-12	0-1.5	No	100	100	100	100	62	24	-----	-----	Owner: H.A. Manosh. Area is long, narrow meadow west of Map Identification No. 29. It is located 0.06

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 24

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	2-12	0-2	No	100	100	92	80	21	10	-----	Sand	<p>mile northwest of Vermont Route 100, 0.23 mile southwest of Town Highway No. 34 junction with Route 100. Test No. 1 was in southwest end of meadow. Material was: 0.5'-3', fine sand; 3'-4.5', fine gravel; 4.5'-12', silty sand; bottoms in silty sand.</p> <p>Test No. 2 was in meadow 400 feet northeast of Test No. 1. Material was: 2'-5', silty sand; 5'-7.5', pebbly sand; 7.5'-12', silty sand; bottoms in silty sand.</p>
29	1	1975	1.5-27	0-1.5	Yes	100	100	100	100	10	4	-----	Sand	<p>Owner: William French. Formerly: George Willard. Area is high-faced, bowl-shaped pit on northeast end of large wooded ridge which had not been stripped; trees and topsoil were on pit faces and floor. Owner did not reply to permission request to backhoe ridge. Pit is 0.04 mile west of Vermont Route 100, 0.29 mile southwest of Town Highway No. 34 junction with Route 100. Test No. 1 was in southwest face of pit. Material was: 1.5'-27', sand and fine sand; bottoms in 18 feet of silt-clay which was not sampled.</p>
30	1	1975	0-6	----	Yes	100	100	100	88	31	1	-----	Sand	<p>Owner: B.E. Campbell. Area is large multi-faced and multi-level pit with strippings, washed-out</p>

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 25

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			
														areas, boulders, and water in all parts. Owner says over the years different people using the pit dumped coarse material and stripping in excavated areas; some of this may be usable. Pit has a very limited extension to north and northwest, with meadow to the east. Property line runs along west edge of pit. Stripping piles, trees, down slope and small stream are on southern edge Pit is 0.15 mile west of Town Highway No. 39, 0.49 mile south of Vermont Route 12 junction with No. 39. Test No. 1 was in lowest level of pit, southern end, northern face. Material was: 0'-3.5', sand; 3.5'-5' pebbly sand; 5'-6', fine gravel; bottoms in fine gravel.
	2A	1975	1-5	0-1	Yes									Test No. 2A was in middle level of pit, southern end, east face. Material was: 1'-5', sand; bottoms in Test No. 2B.
	2B	1975	5-10	----	Yes	88	83	69	54	5	4	18.6%	Gravel	Test No. 2B was below Test No. 2A. Material was: 5'-10', gravel and sandy gravel; bottoms in sloughed material.
	3	1975	0.5-10.5	0-0.5	Yes	90	83	69	58	8	2	18.6%	Gravel	Test No. 3 was in middle level of pit, east face, 70 feet north of Test No. 2. Material was: 0.5'-1', gravel; 1'-2', sand; 2'-5', gravel and sandy gravel; 5'-6.5', pebbly sand; 6.5'-10.5',

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 26

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			
	4	1975	1-13	0-1	Yes	100	96	74	52	5	4	16.3%	Gravel	gravel; bottoms in sloughed material Test No. 4 was in upper level of pit east face, 65 feet north of Access. Material was: 1'-2.5', gravel with silt traces; 2.5'-13', gravel; bottoms in sloughed material.
	5	1975	1.5-16	0-1.5	Yes	94	84	60	39	12	7	16.3%	Gravel	Test No. 5 was in upper level of pit east face, 175 feet north of Test No. 4. Material was: 1.5'-16', gravel with orange-oxidized layers; bottoms in sloughed material.
	6A	1975	1.5-17	0-1.5	Yes	89	83	63	41	11	8	23.3%	Gravel	Test No. 6A was in upper level of pit, north face, 140 feet north-west of Test No. 5. Material was: 1.5'-8', coarse gravel and gravel with 2'-3' boulders; 8'-10', hard-packed silt and rocks; 10'-17', gravel and fine gravel; bottoms in sloughed material.
	7A	1975	1-10	0-1	Yes	100	100	100	75	44	34	-----	-----	Test No. 7A was in upper level of pit, west face, 190 feet southwest of Test No. 6. Material was: 1'-10', gray till; bottoms in Test No. 7B.
	7B	1975	10-22	----	Yes	100	100	89	68	12	8	-----	Sand	Test No. 7B was below Test No. 7A. Material was: 10'-15', pebbly sand and sand; 15'-22', gray till; bottoms in sloughed material.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 27

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 VMD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
	8	1975	2-21	0-2	Yes	100	100	100	73	43	31	-----	----	Test No. 8 was in middle level of pit, west face, 230 feet south-west of Test No. 7. Material was: 2'-20', silt; 20'-21', gravel; bottoms in sloughed material.
	9	1975	2.5-8	0-2.5	No	100	100	100	76	46	34	----	----	Test No. 9 was in meadow, 110 feet west of northern most pit face. Material was: 2.5'-4', gravel; 4'-5.5', silty sand; 5.5'-6', fine gravel; 6'-8', silty sand; bottoms on ledge.
	10	1975	1.5-11	0-1.5	No	100	100	100	100	82	50	----	-----	Test No. 10 was in meadow, 135 feet east-northeast of Test No. 4. Material was: 1.5'-11', silty sand; bottoms in silt and large boulders.
	11	1975	1-11	0-1	No	100	100	100	99	78	35	-----	-----	Test No. 11 was atop knoll 110 feet south of access road. Material was: 1'-4', fine sand; 4'-11', silt sand; bottoms in silty sand.
	12	1975	2-8	0-2	No	100	100	91	76	45	33	-----	----	Test No. 12 was in meadow 160 feet south of Test No. 11. Material was: 2'-4', silty sand; 4'-6', gravel; 6'-8', silt (hardpan); bottoms in hardpan.
	13	1975	1-7	0-1	Yes	75	70	54	42	27	19	15.4%	----	Test No. 13 was in pit floor 115 feet south of Test No. 6A. Material was: 1'-7', bouldery gravel; bottoms in clayey silt with water coming in hole.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 28

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			
31	1A	1975	1-17	0-1	Yes	92	82	63	46	8	6	24.8%	Gravel	Owner: Ronald Stancliff. Formerly: Town Pit. Area is portion of large pit with high face and wooded extension to the north. Property line for Map Identification No. 30 divides the northeast face and forms entire eastern boundary. Property line 90 feet south of face forms boundary between Map Identification No. 31 and 32. Owner does not have right-of way for access to material; however, B.E. Campbell said if need arose he could have access through his pit. Pit is 0.26 mile west of Town Highway No. 39, 0.49 mile south of Vermont Route 12 junction with No. 39. Test No. 1A was in upper northern face of pit, west-northwest of Town Highway No. 39. Material was: 1'-8', gravel; 8'-13', silt and clay; 13'-17', gravel; bottoms in sloughed material.
	1B	1975	0-12	----	Yes	100	100	82	54	18	13	----	Gran. Borrow (Sand)	Test No. 1B was in lower northern face of pit. Material was: 0'-2', gravel; 2'-3.5', clayey silt; 3.5'-5', gravel; 5'-7', silty clay; 7'-8', gravel; 8'-9', silt; 9'-10', fine gravel; 10'-12', clayey silt; bottoms in sloughed material.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 29

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	0-9	----	Yes	100	92	81	60	45	35	----	---	Test No. 2 was in northwest face of pit. Material was: 0'-2', gravel; 2'-9', silt with stones and boulders near bottom; bottoms in sloughed material.
32		1975				NO SAMPLES TAKEN								Owner: Robert Ianni. Formerly: Towne Pit. Area is depleted remains of large pit which borders Map Identification No. 30 and 31. There are numerous stripping piles, boulders, and faces, but no extension except possibly under owner's house. Pit is 0.28 mile west of Town Highway No. 39, 0.49 mile south of Vermont Route 12 junction with No. 39. There is another possible access road west of Town Highway No. 37 via private drive past owner's house.
33	1	1975	0.5-7	0-0.5	Yes	100	100	88	75	6	3	19.8%	Sand	Owner: B.E. Campbell. Area is irregular-shaped pit on side hill in woods, with limited extensions. 820 foot access road west of Town Highway No. 39 is overgrown with trees and needs some improvement. Access road is 0.67 mile south of Vermont Route 12 junction with Town Highway No. 39. Test No. was in southern face of pit. Material was: 0.5'-2', gravel; 2'-2.5', sand; 2.5'-5', sandy gravel; 5'-7', pebbly sand; bottoms in gravelly sand with silt traces.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 30

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			
34	1	1975	2-28	0-2	Yes	100	100	100	90	8	2	---	Sand	Owner: Mrs. Katherine Rooney. Area is large, irregular-shaped, multi-faced pit, with trees, bushes, overburden and junk on faces and floor. There is down slope along southern edge of pit, and a wooded extension to the northwest. Power lines cut diagonally over pit, and an old buried dump in lower southwest face extension. Pit is southwest of Town Highway No. 45, with dual access 0.11 mile and 0.15 mile northwest of Town Highway No. 30 junction with No. 45. Test No. 1 was in northwest face of northern pit area. Material was: 2'-14', fine sand; 14'-20', sand; 20'-28', fine sand; bottoms in sloughed material.
	2	1975	2-20	0-2	Yes	100	100	89	85	12	7	-----	Sand	Test No. 2 was in west face of northern pit area. Material was: 2'-3.5', fine gravel; 3.5'-8', fine sand; 8'-14', sand; 14'-20', fine sand; bottoms in sloughed material.
	3	1975	1-6	0-1	Yes	100	93	73	56	5	3	28.8%	Gran. Borrow (Gravel)	Test No. 3 was in western face of middle pit. Material was: 1'-6', gravel; bottoms in same.
	4	1975	0-6	-----	Yes	100	100	100	88	16	5	-----	Sand	Test No. 4 was in northwest face of lower level of pit. Material was: 1'-1.5', fine sand with silt traces; 1.5'-6', sand and stoney sand; bottoms in sand.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 31

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			
35	1	1975	1.5-7	0-1.5	Yes	96	83	53	38	7	4	25.7%	Gran. Borrow (Gravel)	Owner: Mrs. Celia Stewart. Formerly William Stewart (deceased). Area is 30' x 70' shallow pit in woods with extensions to east and northeast. There was water on northeast end of pit floor and holding area for logs north of access road. No backhoe testing was allowed. Pit is 0.04 mile west of Town Highway No. 46 end. Test No. 1 was in southeast face of pit. Material was: 1.5'-7', gravel bottoms in same.
	2	1975	1-7	0-1	Yes	86	81	62	48	9	5	34.5%	Gran. Borrow (Gravel)	Test No. 2 was in north-northwest face of pit. Material was: 1'-3.5' gravel; 3'-5.4', silt; 4'-7', gravel, bottoms in gravel.
36	1	1975	0.5-9	0-0.5	Yes	100	100	93	79	11	5	-----	Sand	Owner: Lawrence Lapine. Formerly: Al Rock. Area is pasture with long, narrow, overgrown, junk-filled pit. Owner says he dumped silt and clay in northeast end of pit to create farm pond. There is small stream on southern edge of area, and large boulders or ledge in pit floor. Extension would be to northeast and possibly to the west. Pit is 125 feet north of Town Highway No. 30, 0.20 mile west of junction of Town Highways 30, 50, and 49. Test No. 1 was in northeast face of pit. Material was: 0.5'-9', gravelly sand; bottoms in same.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 32

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			
37	1	1975	1-13	0-1	Yes	100	100	92	84	7	3	-----	Sand	Owner: State of Vermont. Formerly: C.C. Miller. Area is nearly depleted, overgrown, large rambling pit with junk on east face and parts of floor. All land to south and east belongs to the State of Vermont Airport, and Sonny Miller owns pasture north of pit. Only available material would be in the pit floor Pit is 0.04 mile east of Vermont Route 100, 0.14 mile south of Town Highway No. 54 junction with Route 100. Test No. 1 was in north east face of pit. Material was: 1'-6', gravelly sand; 6'-13', pebbly sand; bottoms in sloughed material.
	2	1975	1.5-12	0-1.5	Yes	100	100	92	85	4	2	-----	Sand	Test No. 2 was in northern face of pit. Material was: 1.5'-12', gravelly sand, bottoms in sloughed material.
	3	1975	1-8	0-1	Yes	100	100	94	83	5	2	-----	Sand	Test No. 3 was in southern face of pit. Material was: 1'-8', gravelly sand; bottoms in sloughed material
38	1	1975	0.5-5	0-0.5	Yes	100	100	84	66	62	34	-----	-----	Owner: Mrs. Languerand (deceased) Area is pasture with small pit in southwest corner. A small stream is in gulley which divides pasture There was water on pit floor and topsoil piles on top of faces.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 33

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			
														Ledge showed in several places at eastern edge of pasture. Pit is 11 feet east of State Aid Highway No. 1, 0.97 mile northeast of its junction with Town Highway No. 56 and 57. Test No. 1 was in pit floor near entrance, 110 feet east of State Aid Highway No. 1. Material was: 0.5'-2.5', gravel with water pouring into hole; 2.5'-3.5', clay 3.5'-5', gray bouldery silt.
	2	1975	1-12	0-1	No	100	100	100	100	33	5	-----	Gran. Borrow (Sand)	Test No. 2 was in northeast end of ridge, 120 feet northeast of pit face. Material was: 1'-4.5', sand; 4.5'-12', fine sand; bottoms possibly in gravel.
	3	1975	2-10	0-2	No	100	100	100	91	9	4	-----	Sand	Test No. 3 was in pasture atop ridge, 60 feet south of property fence line. Material was: 2'-4.5, fine sand; 4.5'-10', sand and pebbly sand; bottoms in pebbly sand.
	4	1975	1.5-9	0-1.5	Yes	95	78	60	47	21	9	22.2%	Gran. Borrow (Gravel)	Test No. 4 was in northwest face of pit. Material was: 1.5'-2.5', fine sand; 2.5'-3', pebbly sand; 3'-9', gravel with some silt traces.
39	1	1975	1-10	0-1	Yes	100	100	100	100	95	45	-----	-----	Owner: Ernest Plante. Area is small pit in pasture at southeast edge of saddle-shaped ridge. Pit is 100 feet southeast of Town Highway No. 41, 0.19 mile north-

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 34

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 VMD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
														west of Elmore-Morristown Town Line. Test No. 1 was in southwest face of pit. Material was: 1'-10', fine sand with silt seams; bottoms in same.
40	1	1975	2-10	0-2	Yes	100	100	100	100	63	36	----	----	Owner: Dale Percy. Formerly: Magoon, Manosh, Cochran Pit. Area is large, multi-faced pit with extensions in pasture to the south and west. There is swamp to the north and houses to east with ledge showing in southwest end of pit and in western extension. Some of the extensions were included in Map Identification No. 41. Pit is 0.05 mile northwest of Town Highway No. 54, 0.36 mile Northeast of Town Highway No. 55 junction with No. 54. Test No. 1 was in northeast face of eastern pit lobe. Material was: 2'-4', silt and clayey silt; 4'-8', fine sand; 8'-10', sand and fine sand; bottoms in sand.
	2A	1975	2-12	0-2	Yes	100	100	100	100	99	73	----	----	Test No. 2A was in east face of main pit area. Material was: 2'-12', silty fine sand; bottoms in Test No. 2B.
	2B	1975	12-22	----	Yes	100	100	90	66	28	8	----	Sand	Test No 2B was below Test No. 2A. Material was: 12'-17', finegravel; 17'-22', sand and

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 35

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	0-12	---	Yes	100	87	60	49	7	4	----	Gran. Borrow (Sand)	pebbly sand; bottoms in sloughed material. Test No. 3 was in lower level of northern pit. Material was: 0'-2', silty gravel; 2'-5', gravel; 5'-7', sand; 7'-8', silty sand; 8'-12', sand; bottoms in sloughed material.
	4	1975	5-25	0-5	Yes	96	86	63	47	24	16	34.2%	----	Test No. 4 was in upper north-northwest face of pit. Material was: 5'-9', gravel 9'-10', sand; 19'-25', gravel; bottoms in gravel.
	5	1975	1-19	0-1	Yes	89	78	56	45	14	6	32.2%	Gran. Borrow (Gravel)	Test No. 5 was in west north-west face of pit. Material was: 1'-4.5', sand and fine sand; 4.5'-5.5', silty sand; 5.5'-19', gravel; bottoms in ledge.
	6A	1975	2-24	0-2	Yes	100	100	100	100	13	4	----	Sand	Test No. 6A was in southwest face of pit. Material was: 2'-24', fine sand running to sand toward bottom; bottoms in test No. 6B.
	6B	1975	24-42	----	Yes	84	77	53	38	7	4	34.2%	Gran. Borrow (Gravel)	Test No. 6B was in southwest face of pit. Material was: 24'-27', pebbly sand; 27'-42', gravel; bottoms in sloughed material and ledge.
	7	1975	2.5-12	0-2.5	Yes	100	100	100	100	17	4	----	Sand	Test No. 7 was in southern face of pit. Material was: 2.5'-6',

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 36

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			
	8	1975	0.5-10	0-0.5	Yes	100	100	100	78	41	23	-----	---	fine sand; 6'-12', sand; bottoms in sand. Test No. 8 was in pit floor, 20 feet west of Test No. 2. Material was: 0.5'-5', fine sand and silty sand; 5'-6', gravel; 6'-8', fine sand; 8'-10', sand; bottoms in sand and water.
	9	1975	1-12	0-1	Yes	100	100	100	87	10	3	-----	Sand	Test No. 9 was in pit floor 70 feet east of Test No. 6. M Material was: 1'-4.5', sand; 4.5'-10', pebbly sand; 10'-12' sand; bottoms in sand.
41	1	1974	10-20	Frozen	Yes	95	90	66	50	9	5	20.6%	Gravel	Owner: Dale Percy. Formerly: Manosh, Magoon, Cochran Pit. Area is large, multi-faced pit with ridge of ledge in middle. There is large pile of crushed gravel which owner hired done in southern corner, and strippings and topsoil piles placed randomly around pit. There were small ledge outcrops showing in northwest end and water in diggings at west corner. All extensions were in pasture with small stream on southwest edge. Pasture is multi-knolled with large boulders and power line on northeast edge. Owner claimed he had to do considerable stripping to get to usable materia

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 37

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				
															Pit is 0.05 mile west of Town Highway No. 54, 0.16 mile north east of Town Highway No. 55 junction with No. 54. Test No. 1 was in northwest face of upper level of pit. Material was: 0'-10', frozen; 10'-20', gravel and sand layers intermixed. Bottoms in frozen gravel.
	2	1975	6-12	Frozen	Yes	84	80	67	48	15	9	22.9%	Gran. Borrow (Gravel)	Test No. 2 was in southwest face of pit. Material was: 0'-6', frozen, 6'-12', sand and gravel layers intermixed; bottoms in frozen gravel.	
	3	1975	05-8	0-0.5	Yes	70	63	48	34	41	19	27.2%	-----	Test No. 3 was in pit floor, northeast corner. Material was: 0.5'-1.5', fine gravel; 1.5'-2', fine sand; 2'-4', gravel; 4'-6.5', silty gravel; 6.5'-8', gravel; bottoms in gravel and water.	
	4A	1975	5-22	0-5	Yes	83	81	62	52	19	8	29.2%	Gran. Borrow (Gravel)	Test No. 4A was in northeast face of eastern end of pit. Material was: 5'-10', sand; 10'-14', gravel; 14'-16', fine sand; 16'-19', fine gravel; 19'-22', yellow silty gravel, bottoms in Test No. 4B.	
	4B	1975	22-32	-----	Yes	90	85	73	65	16	7	27.6%	Gran. Borrow (Gravel)	Test No. 4B was below Test No. 4A. Material was: 22'-28', pebbly sand and gravel layers; 28'-32', gravelly sand; bottoms in sloughed material.	

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 38

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			
	4C	1975	0-10	----	Yes	90	80	58	38	9	5	27.6%	Gran. Borrow (Gravel)	Test No. 4C was in lower north-east face of eastern end of pit. Material was: 0'-1.5', sand; 1.5'-10', gravel; bottoms in gravel.
	5A	1975	0-10	-----	Yes	86	86	69	56	5	3	29.2%	Gran. Borrow (Gravel)	Test No. 5A was in northwest face, middle of pit, 100 feet northwest of southern end of ledge ridge. Material was: 0'-0.5', fine gravel; 0.5'-3', sand; 3'-5', fine gravel; 5'-10', intermixed sand and fine gravel layers; bottoms in Test No. 5B.
	5B	1975	0-8	----	Yes	83	77	60	53	18	12	29.2%	Gran. Borrow (Gravel)	Test No. 5B was in pit floor below Test No. 5A. Material was: 0'-8', sandy coarse gravel with a few orange colored streaks; bottoms in ledge and water.
	6	1975	0-6	----	Yes	100	100	91	86	25	9	----	Sand	Test No. 6 was in pit floor 60 feet northwest of Test No. 5. Material was: 0'-6', sand; bottoms on ledge.
	7	1975	0-5	----	Yes	94	91	66	50	35	17	29.0%	-----	Test No. 7 was in pit floor of northwestern-most area. Material was: 0'-1', sand; 1'-3', coarse gravel; 3'-5', silt; bottoms in ledge and water.
	8	1975	1-12	0-1	No	100	100	100	97	57	22	----	-----	Test No. 8 was in pasture 190 feet northeast of pit face, 230 feet northwest of Map Identification No. 40 face. Material was: 1'-11', fine sand

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 39

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			
	9	1975	1-12	0-1	No	100	100	100	100	46	19	-----	---	and sand with a few silt seams; 11'-12', sand; bottoms in sand.
	10	1975	1.5-11	0-1.5	No	100	100	100	100	74	30	-----	----	Test No. 9 was in pasture 290 feet northeast of Test No. 8 near power line. Material was: 1'-12', silty sand; bottoms in same.
	11	1975	1-12	0-1	No	100	100	100	100	28	10	-----	Sand	Test No. 10 was in pasture 280 feet northeast of Test No. 9. Material was: 1.5'-11', fine sand; bottoms in blue silt.
	12	1975	FROM CRUSHER		Yes	100	100	100	58	15	4	-----	crushed gravel	Test No. 11 was in pasture atop ridge, 220 feet northwest of Test No. 8. Material was: 1'-2', sand; 2'-5', fine sand. 5'-6', silt; 6'-12', sand and fine sand layers; bottoms in boulders or ledge.
	13	1975	5-14	0-5	Yes	95	86	53	36	15	10	20.0%	Gran. Borrow (Gravel)	Test No. 12 was from large pile of crushed gravel in pit.
	14	1975	1.5-9	0-1.5	Yes	100	100	82	66	45	21	-----	---	Test No. 13 was in southeast face of pit. Material was: 5'-7', fine sandy gravel; 7'-9', fine gravel; 9'-14', orange-cemented, coarse gravel; bottoms in same.
														Test No. 14 was in northwest face of western-most diggings. Material was: 1.5'-2.5', fine sand 2.5'-3.5', sand; 3.5'-4.5', gravelly sand; 4.5'-7.5',

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 40

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			
	15A	1975	3-15	0-3	Yes	100	100	100	93	19	7	-----	Sand	sandy gravel; 7.5'-9', gravelly sand bottoms in sloughed material. Test No. 15A was in northwest face of pit. Material was: 3'-5', silty sand; 5'-7', fine sand; 7'-9', sand; 9'-15', intermixed layers of sand and pebbly sand; bottoms in Test No. 15B.
	15B	1975	15-24	----	Yes	88	77	51	38	9	3	25.9%	Gran. Borrow (Gravel)	Test No. 15B was below Test No. 15. Material was: 15'-17', pebbly sand; 17'-24', gravel; bottoms on ledge.
42	1	1975	1-9	0-1	Yes	88	84	65	50	20	10	19.6%	Gran. Borrow (gravel)	Owner: Andy Valcour. Area is meadow with long, narrow pit in southwest corner. There are stripping piles on floor and trees on southeast face. Owner did not want backhoe digging in field and was undecided whether he would sell material. Pit is 0.06 mile west of State Aid Highway No. 1, 0.25 mile south of town Highways No. 56 and 57 junction with State Aid No. 1. Test No. 1 was in east face of pit. Material was: 1'-3', gravel; 3'-9', sandy gravel with some fine sand layers; bottoms in sandy gravel.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 41

Map Ident. No.	Field Test No.	Year Field Tested	Depth of Sample (Ft)	Over-burden (Ft)	Existing Pit	Sieve Analysis						Abrasion AASHTO T-4-35	Passes VHD Spec.	Remarks
						% Passing								
						2"	1-1/2"	1/2"	#4	#100	#200			
43	1	1975	1-16	0-1	Yes	100	100	100	82	5	2	-----	Sand	Owner: Laurence Stancliff. Area is small excavation northwest of owner's barn. Extension would be in narrow, irregular-shaped pasture to northwest with wooded down slope to the north. There was good looking meadow on southwest edge of pasture; however, owner would not allow any testing. Pit is 0.14 mile north of Town Highway No. 72, 0.71 mile northwest of State Aid Highway No. 1 junction with No. 72. Test No. 1 was in face and floor of small digging. Material was: 1'-4', fine gravel; 4'-16', sand with some pebbly sand layers; bottoms in moist sand.
44	1	1975	1-6	0-1	No	100	93	88	78	22	12	----	Sand	Owner: Laurence Stancliff. Area is low terrace used as pasture, with swamp on east and west edges and brook on northern edge. Field is northeast of Town Highway No. 72, 0.67 mile northwest of State Aid Highway No. 1, junction with No. 72. Test No. 1 was in northwest end of pasture. 350 feet northeast of Town Highway No. 72. Material was: 1'-4', fine sand; 4'-6', gravel; bottoms in silt-clay and water.

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 42

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	0.5-5	0-0.5	No	100	100	73	53	7	4	13.2%	Gravel	Test No. 2 was in pasture 300 feet southeast of Test No. 1. Material was: 0.5'-5', gravel; bottoms in silt-clay.
45	1	1975	1-12	0-1	No	100	100	100	87	4	2	-----	Sand	Owner: Laurence Stancliff. Area is long, narrow, rectangular field which had formerly been planted in corn. Owner refused permission to backhoe meadow to the east and west, and woods to the south. Field is southwest of Town Highway No. 72, 0.71 mile northwest of State Aid Highway No. 1 junction with No. 72. Test No. 1 was in cornfield 190 feet southwest of Town Highway No. 72. Material was: 1'-3.5', fine gravel; 3.5'-12', sand with pebbly sand layers; bottoms in sand.
	2	1975	0.5-4.5	0-0.5	No	100	100	100	82	6	1	-----	Sand	Test No. 2 was in cornfield 450 feet south of test No. 1. Material was: 0.5'-2', fine gravel; 2'-4.5', sand with pebbly sand seams; bottoms in silt-clay and water.
46	1	1975	1.5-14	0-1.5	Yes	100	100	95	87	22	4	-----	Sand	Owner: Rev. Danial Dougherty. Area is pit face southeast of Town Highway No. 50. The Town drew some material out to fix road, however there does not appear to be much

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 43

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			
														extension with ledge showing in places. All extensions are wooded and resemble a ridge trend. northwest-southwest. Pit is 0.23 mile south of Town Highway No 63 junction with Town Highway No. 50. Test No. 1 was in northeast face of pit. Material was: 1.5'-4', sand; 4'-8', pebbly sand; 8'-9', gravel; 9'-14', sand with some stones; bottoms in sloughed material
47	1	1975	1-10	0-1	Yes	89	89	73	61	21	7	34.6%	Gran. Borrow (Sand)	Owner: Ralph Chaffee. Area is small two-leveled pit with wooded extension. Owner let the Town open up pit with the promise it would be smoothed over again. Pit is east-southeast of Town Highway No. 63, 0.26 mile southwest of Town Highway No. 50 junction with No. 63. Test No. 1 was in upper east face of pit. Material was: 1'-2', fine gravel; 2'-4.5' sand and fine sand; 4.5'-5.5', silty fine gravel; 5.5'-10', gravelly sand; bottoms in sloughed material.
	2	1975	0.5-13	0-0.5	Yes	100	94	75	58	10	5	27.4%	Gran. Borrow (Sand)	Test No. 2 was in lower southwest face of pit. Material was: 0.5'-1.5', sand with 3-inch fine sand layer; 1.5'-5', coarse gravel; 5'-11', gravel with some gravelly sand toward

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 44

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			
														bottom; 11'-13', sand and pebbly sand; bottoms in sloughed material
48	1	1975	1-18	0-1	Yes	100	100	100	86	16	5	-----	Sand	Owner: Frank Lackey. Formerly: Harold Dyke. Area is 25' x 75', nearly overgrown pit in southeast edge of gently sloping terrace. There was ledge in west edge of field, and trees on terrace down slopes. Extension was in meadow to northwest, however owner had no intention of selling. Pit is 210 feet east of Town Highway No. 70, 0.05 mile north of Town Highway No. 60 junction with No. 70. Test No. 1 was in northwest face of pit. Material was: 1'-2.5', sand; 2.5'-6', fine gravel; 6'-12', pebbly sand; 12'-18', sand with some stones; bottoms in sloughed material.
49	1	1975	1-7	0-1	Yes	100	100	100	95	54	19	-----	-----	Owner: Dan Donza. Area is depleted pit with property line very close to face. There are topsoil piles and trees on floor, and Dan's Auto to the northeast of pit face. Pit is 0.10 mile southwest of Town Highway No. 60, 0.50 mile northwest of State Aid Highway No. 5 junction with No. 60. Test No. 1 was in

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 45

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				
															pit floor, 70 feet northeast of Test No. 3. Material was: 1'-3.5', sand with fine sand seams; 3.5'-7', moist silty sand; bottoms in silty sand.
	2	1975	1.5-4	0-1.5	No	100	100	100	100	100	98.5	-----	A-4 Silt	Test No. 2 was in west edge of field, 135 feet northwest of access road. Material was: 1.5'-4', silt; bottoms in clay.	
	3	1975	1-9	0-1	Yes	100	100	88	80	21	7	-----	Sand	Test No. 3 was in west face of pit, 0.10 mile southwest of Town Highway No. 60. Material was: 1'-3', gravel; 3'-7', sand; 7'-9', pebbly sand; bottoms in sloughed material.	
	4	1975	1-7	0-1	Yes	100	100	100	96	37	11	----	Gran. Borrow (Sand)	Test No. 4 was in southwest pit face, 130 feet northwest of Test No. 1. Material was: 1'-3', sandy gravel; 3'-7', sand; bottoms in sloughed material	
	5	1975	1-6	0-1	No	100	90	76	65	44	24	----	----	Test No. 5 was in lower eastern field, 60 feet southwest of Town Highway No. 60. Material was: 1'-4', silty sand; 4'-6', gravel and water; bottoms in gravel and water.	
	6	1975	2-9	0-2	No	82	69	50	59	29	15	26.2%	Gran. Borrow (Gravel)	Test No. 6 was in field, 200 feet southeast of Test No. 5. Material was: 2'-3', sand; 3'-9', coarse gravel; bottoms in coarse gravel and water.	

TABLE I

MORRISTOWN GRANULAR DATA SHEET NO. 46

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			
50	1	1975	1.5-5	0-1.5	No	100	100	100	86	39	23	----	----	Owner: William Small. Area is long, narrow corn field nearly surrounded by tree-line. Stowe-Morristown Town Line is on southwest end of field, with pasture and meadow surrounding remainder. Field is 0.10 mile northwest of State Aid Highway No. 1, 1.25 miles southwest of Town Highway No. 72 junction with State Aid Highway No. 1. Test No. 1 was in northeast end of corn field, 40 feet from its northern end. Material was: 1.5'-3', sandy gravel; 3'-4', fine sand; 4'-5', sand; 5'-6', silt, bottoms in silt.
	2	1975	1.5-10	0-1.5	No	100	100	89	76	38	18	----	-----	Test No. 2 was in cornfield 510 feet southwest of Test No. 1. Material was: 1.5'-5.5', gravel; 5.5'-6.5', silt; 6.5'-9.5', fine gravelly sand; 9.5'-10', silt with water coming in hole; bottoms in silt and water.
	3	1975	1-12	0-1	No	100	100	78	60	18	9	14.3%	Gran. Borrow (Gravel)	Test No. 3 was in cornfield 330 feet southwest of Test No. 2. Material was: 1.5'-12', gravel with a few silt seams; bottoms in gravelly sand.
	4	1975	1-12	0-1	No	85	82	62	46	14	4	15.8%	Gravel	Test No. 4 was in cornfield 300 feet southwest of Test No. 3. Material was: 1'-12', coarse gravel; bottoms in coarse gravel.

MORRISTOWN PROPERTY OWNERS - GRANULAR

Map Identification No.

Alexander, Harry	8
Arnold, Otis	6
Bates, Raeburn	11
Blaisdell, Wayne	12
Brosseau, Omer	1
Campbell, B.E.	30, 33
Chaffee, Ralph	47
Cram, Jim	15
Demars, Oneal Jr.	3, 23
Donza, Dan	49
Dougherty, Rev. Danial	46
French, William	29
Godfrey, Richard	21, 24, 25, 26
Goodwin, Arthur	13
Greaves Farms, Inc.	22
Hicks, Willis	2
Hirschak, Tom	5
Houle, Phil	9
Ianni, Robert	32
Keith, Phil	18
Lackey, Frank	48
Languerand, Mrs.	38
Lanphear, Rodney	16
Lapine, Lawrence	36
Manosh, H.A.	27, 28
Overton, Raymond	10
Percy, Dale	40, 41
Perry, Eva (Miss)	7
Plante, Ernest	39
Pratt - Read And Co.	14
Rooney, Katherine (Mrs.)	34
Small, William	50
Stancliff, Laurence	43, 44, 45
Stancliff, Ronald	31
State of Vermont	37
Stewart, Celia (Mrs.)	35
Town of Morristown	4

PROPERTY OWNERS - GRANULAR (CON*T)

Valcour, Andy	42
Village of Morristown	20
Williams, R.H.	19
Williams, Wayne	17

Table II

MORRISTOWN 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	1A	1975	Green- stone	No	Chip	4.4%	24.5%	<p>Owner: Earl Welch. Area is an overgrown pasture which rises gently to the east from Vermont Route 12 near the Wolcott-Elmore-Morristown town line. The uneven surface exposes random outcrops and bedrock control close to the surface. Access would be good from Vermont Route 12 but a culvert would have to be widened. There is only low relief in the pasture but ledge shows on the hillside to the south and indicates the presence of considerable amounts of material. The rock is from the Stowe green- stone and amphibolite and quite hard. It breaks from blocky to sub-angular with some jointing noted. Development of the area would have to take into consideration several nearby buildings and a utility line right-of-way over the property. Owner has about 100 acres of land at this location and is willing to sell material.</p> <p>Test No. 1A was a 100 foot sample from random outcrops southeast of Vermont Route 12.</p>
	1B	1975	Green stone	No	Chip	6.9%	37.0%	<p>Test No. 1B was a 100 foot sample from random outcrops above Test No. 1A.</p>
2	1A	1975	Quartzose Phyllite	No	Chip	8.3%	32.3%	<p>Owner: John Merrill. Area is southwest of the junction of Vermont Route 15 A and Town Highway No. 22. The area was a hill sloping up to the southwest. Three outcrops (15 to 20 feet high) were sampled. There was ledge and bedrock control in a large area surrounding the sampled outcrops allowing for ample reserves. Some woods will have to be cleared before development could take place. There may be a problem of disturbing the deep-well water supply for Morrisville because blasting and rock removal may divert the ground water from the wells across the road.</p>

Table II

MORRISTOWN ROCK DATA SHEET NO. 2

Map Ident. No.	Field Test No.	Year Field Tested	Rock Type	Exist- ing Quarry	Method of Sampling	Abrasion AASHTO		Remarks
						T-3	T-96	
	1B	1975	Quartzose Phyllite	No	Chip	6.6%	28.5%	<p>The rock was in the Stowe Formation quartzose phyllite and schist, and broke sub-angular to angular. It varied from schistose to massive. Material would be sold.</p> <p>Test No. 1A was a 50 foot sample taken from the two easternmost outcrops.</p> <p>Test No. 1B was a 50 foot sample taken from the two westernmost outcrops.</p>
3	1A	1975	Schist	No	Chip	2.4%	39.6%	<p>Owner: Robert A. Magoon. Area is a 5 acre, wooded, rocky ridge rising abruptly west from the access road, 0.49 mile northeast of its junction with Town Highway No. 7, and 0.56 mile northwest of the junction of Town Highway No. 7 and Town Highway No. 23. Town Highway No. 7 is steep. The woods road becomes wetter and less steep. The main problem is plural ownership, and the reluctance of several owners to sell. The steep topography and heavy woods do not favor easy development, and the access road needs improvements. The rock was thin-bedded and jointed, breaking from blocky to angular and tabular. It was hard in the grainy portion of rock, and soft in the shaly zones.</p> <p>Test No. 1A was a 100 foot sample taken northeastward from Noble's property line.</p>
	1B	1975	Schist	No	Chip	4.9%	32.8%	<p>Test No. 1B was a 100 foot sample taken northeastward from Test No. 1A.</p>
4	1A	1975	Schist	No	Chip	10.4%	41.8%	<p>Owner: Dale Percy. Area is a ridge of rock along the southerly side of the sand and gravel pit at Granular Map Identification No. 41, 0.08 mile west of Town Highway No. 54, and 0.16 mile north of its junction with Town Highway No. 55. The rock is a soft quartzose schist of the</p>

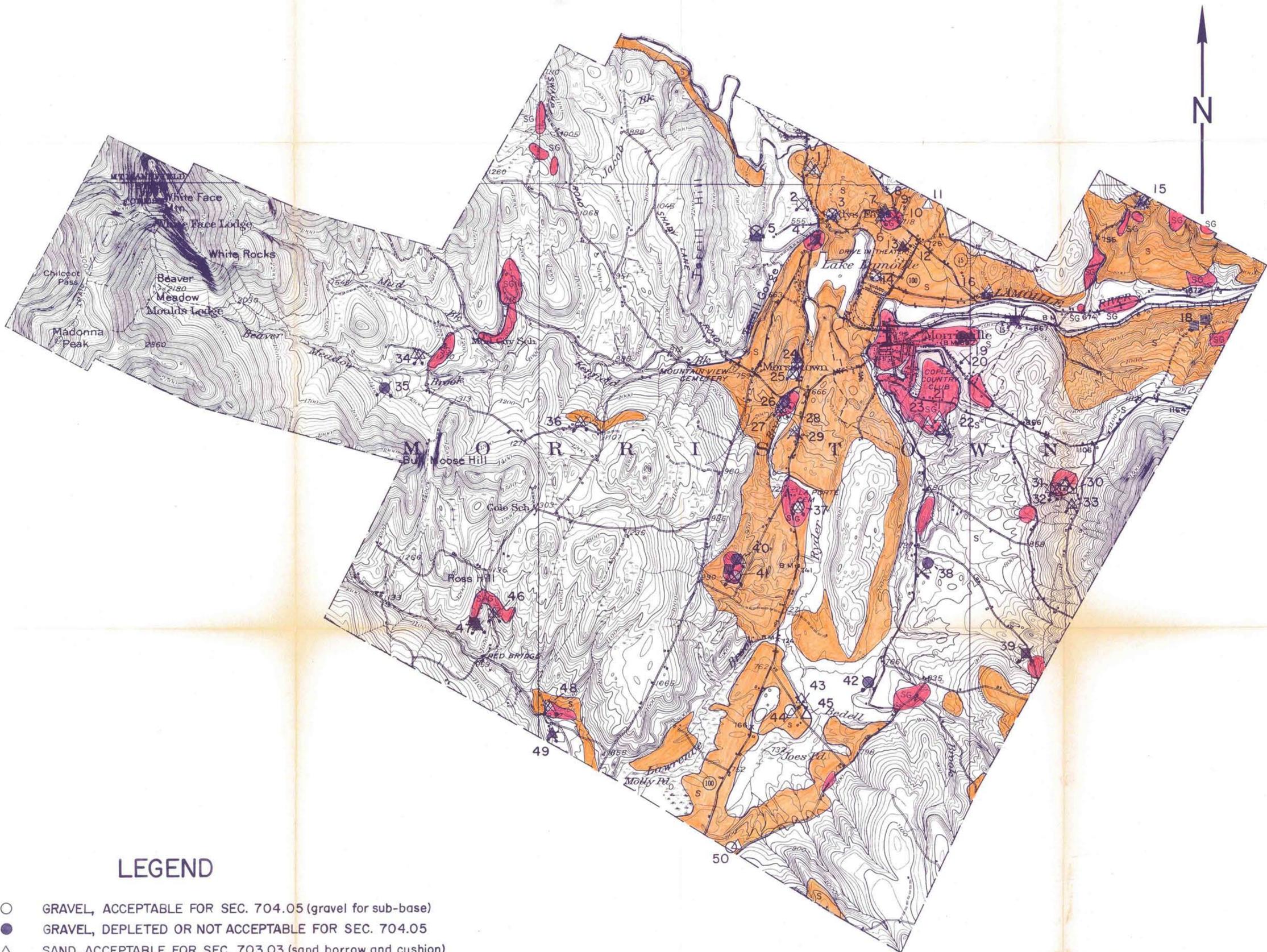
Table II

MORRISTOWN 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	
	1B	1975	Schist	No	Chip	14.0%	39.5%	<p>Hazens Notch Formation, and is thin-bedded with very few joints. It breaks angular to tabular. The rock is unsuitable for Highway Construction; however, the active pit supplies a large amount of sand and gravel.</p> <p>Test No. 1A was a 50 foot sample taken along the western side of outcrop.</p> <p>Test No. 1B was a 50 foot sample taken along the eastern side of outcrop.</p>
5	1	1975	Phyllite	No	Chip	8.7%	47.9%	<p>Owner: Stage Coach Road Associates. Area is a wooded hillside northwest of marshy meadow and cornfield 0.2 mile north of Town Highway No. 71, and 0.70 mile northwest of its junction with Vermont Route 100. This area was bought for a housing development; there are buildings near the road, and some new houses atop the ledge. The rock was very soft and crumbly.</p> <p>Test No. 1 was a ledge outcrop on the northeast end of ridge.</p>
6	1A	1975	Schist	No	Chip	15.2%	53.8%	<p>Owner: Adrian DeWind. Area is a rocky knoll southwest of Town Highway No. 61 and 0.17 mile west of its junction with Town Highway No. 50. The rock is a very soft and crumbly thin-bedded schist of the Hazens Notch Formation. The quantity of rock is large but the quality is not good. There is a power line over the northeast edge of the feature, and a house across the road which would need to be considered in development plans. The feature has three levels of low ridges. There were quartz seams scattered through the rock.</p> <p>Test No. 1A was an 80 foot sample taken from the southwest end of outcrop.</p>

MORRISTOWN PROPERTY OWNERS - ROCK

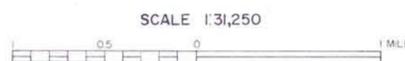
	Map Identification No.
DeWind, Adrian	6
Magoon, Robert A.	3
Merrill, John	2
Percy, Dale	4
Stage Coach Road Associates	5
Welch, Earl	1



LEGEND

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

MORRISTOWN



CONTOUR INTERVAL 20 FEET

1976

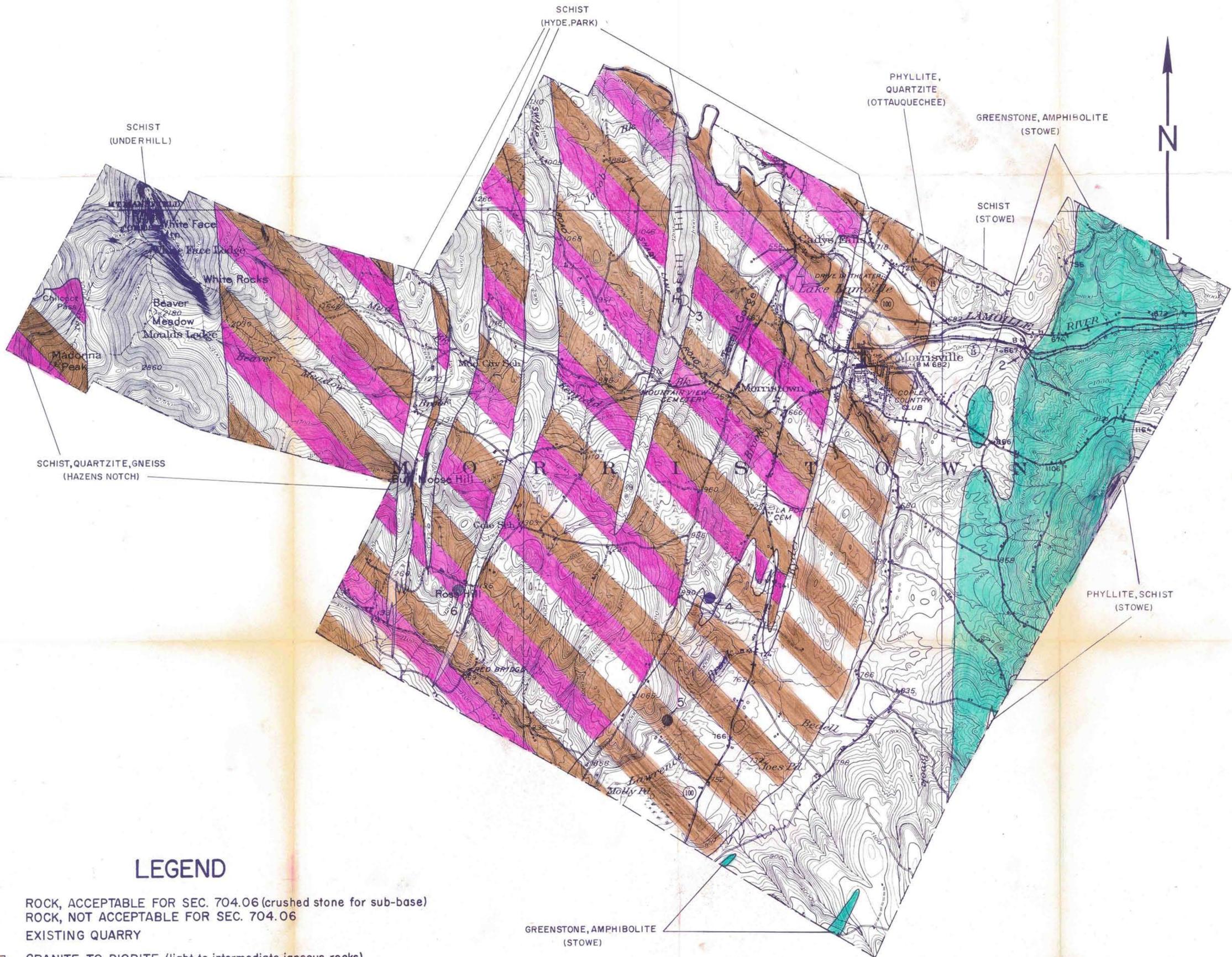
GRANULAR MATERIALS MAP

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

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

REVISIONS

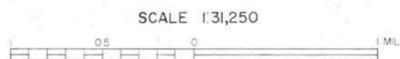
DATE			
BY			



LEGEND

- ROCK, ACCEPTABLE FOR SEC. 704.06 (crushed stone for sub-base)
- ROCK, NOT ACCEPTABLE FOR SEC. 704.06
- ✕ EXISTING QUARRY
- Orange box GRANITE TO DIORITE (light to intermediate igneous rocks)
- Green box AMPHIBOLITE, GABBRO, DIABASE, METADIAB
- Dark Green box 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 data sheets)

MORRISTOWN



CONTOUR INTERVAL 20 FEET

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

REVISIONS

DATE	BY