

**SURVEY OF HIGHWAY CONSTRUCTION MATERIALS  
IN THE TOWN OF ROCKINGHAM, WINDHAM COUNTY, VERMONT**

**prepared by**

**Geologic Survey Section, Construction Division**

**Vermont Department of Highways**

**in cooperation with**

**United States Department of Commerce**

**Bureau of Public Roads**

**Montpelier, Vermont**

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### Acknowledgments

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

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

### History

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

the State and its contractors to proceed with information on material sources available beforehand. Prior knowledge of locations of suitable material is an important factor in planning future highways.

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

#### Inclosures:

Included in this folder are two surface-geology maps; one defining the location of tests conducted on bedrock sources, the other defining the location of tests conducted on granular materials. These maps are derived from 15 minute quadrangles of the United States Geological Survey enlarged to 1:31250 or 1"=2604'. Delineated on the Bedrock Map are the various rock types of the area. This information was obtained from numerous sources; i.e., Vermont Geological Society Bulletins, Vermont State Geologist Reports, United States Geological Survey Bedrock Maps, as well as other references. The Granular Materials Map depicts areas covered by various types of glacial deposits (outwash, moraines, kames, kame terraces, etc.) by which potential sources of gravel and sand may be recognized. This information was obtained primarily from a survey being conducted by Prof. D. P. Stewart of Miami University, Oxford, Ohio who, since 1956, has been mapping the glacial features of the State of Vermont during the summer months. Further information was obtained from the Soil Survey (Reconnaissance)

of Vermont, conducted by the Bureau of Chemistry and Soils of the United States Department of Agriculture, and from Vermont Geological Society Bulletins, United States Geological Survey quadrangles, aerial photographs, and other sources. On both maps the areas tested are represented by Identification Numbers. Several tests are usually conducted in each area represented by an Identification Number, the number of such tests being more or less arbitrarily determined either by the character of the material or by topography.

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

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

### Location

The Town of Rockingham is located in Windham County in the southeastern section of the State on the Connecticut River approximately 30 miles north of the Massachusetts border. The town is in the "Eastern Hill Region", a relatively

low plateau in an advanced stage of erosion with fairly smooth hills and generally unprecipitous valley walls. The stream valleys are fairly wide with large flood plains principally in the Connecticut River Valley. Drainage is easterly into the Connecticut River.

The topography is marked by two streams crossing the town from west to east. The Williams River enters the town in the northwest corner and flows southeasterly into the Connecticut River. The Saxtons River enters the town in the southwest corner and flows easterly, reaching the Connecticut River at Bellows Falls.

#### Procedure for Rock Survey

The routine employed by the project in the survey of possible sources of rock for highway construction is divided into two main stages; the office investigation and field investigation. The first is conducted primarily during the winter months and comprises the mapping of rock types as indicated in various reference sources. Since, at present, the mapping of bedrock geology in the State of Vermont is incomplete, many different sources of information were utilized, as indicated in the Bibliography. These references differ considerably in dependability due to new developments and studies contributing to the obsolescence of a number of reports. In addition, the results of samples taken by other individuals are analyzed and the location in which these samples were taken is mapped when possible. In other words, as complete a correlation as possible is made of all the information available concerning the geology of the area under consideration.

The second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area. The information obtained in this survey, together with the information assimilated in the first stage of the investigation is employed to determine the areas in which the testing and sampling

will be concentrated. When a promising source is encountered as determined not only by rock types but also by volume and the existence of a good working face, chip samples are taken with a hammer and submitted to the Highway Testing Laboratory for testing by the Deval Method (AASHO, T-3). It is kept in mind that samples taken by the chip method are often in the weathered zone of the outcrop and consequently may show a less satisfactory test result than the fresh material deeper in the body of the rock structure. Should the result of this test prove satisfactory, further samples are taken by drilling to a depth of 3 feet and blasting at intervals across the strike or trend of the outcrop. Occasionally, because of the uniformity of the material and a satisfactory test result from the chip sample, no further drilling, blasting or sampling is done and the material source is included as being satisfactory.

#### Discussion of Rock and Rock Sources

The rock types of the Town of Rockingham consist generally of schist or schist thinly interbedded with other types of rock. A small narrow outcrop of granite in the northern part of the town just west of the headwaters of Little Commissary Brook stretches northward for approximately 1.5 miles, reaching into the Town of Springfield. This formation is represented by Identification Number 2 which is at the southern extremity of the outcrop. At this location the formation has spread out into a series of finger-like ridges, none of which showed any appreciable width. However, to the north it is consolidated into a single ridge with good width and ample elevation for convenient operation. This granite was again sampled just across the town line in Springfield where a small quarry had been in operation many years ago. The results of the testing in both areas indicated satisfactory material. Identification Number 1 represents sampling in interbedded bands of impure quartzite

which indicated satisfactory rock. The area consists of a small quarry near a heavily populated residential area. Identification Number 3 represents sampling in a narrow band of quartzite and quartz conglomerate bounded on both sides by schist. Although the test results indicated good material, the supply is very limited by the narrow width of the structure.

A number of abandoned quarries which were not sampled are located in the town. A small quarry on the ridge just west of Bellows Falls Village in an area of schist was used many years ago as a source of foundation stone. Several small slate quarries are located between Minard's Pond and the Connecticut River. However, the quality of the slate is poor.

#### Procedure for Sand and Gravel Survey

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

The second stage of the investigation is begun in the field by making a cursory preliminary survey over the entire area noting areas which show physiographic features giving evidence of glacial or fluvial deposits. These locations are

later examined by digging test pits with a backhoe to a depth of approximately 12 feet and again sampling the material. The samples are submitted to the Highway Testing Laboratory where they are tested for gradation and stone wear, the latter by the Deval Method (AASHO, T-4-35).

#### Discussion of Gravel and Sand Deposits

The surficial deposits of this area are found in glacial and fluvial deposits and are confined to the stream valleys. The glacial deposits occur generally as kame terraces. The area adjacent to the Connecticut River is a large sand deposit grading from fine sand to pebbly sand and gravel. Identification Number 6 is a source of good gravel but the overburden is a fine sandy silt 3.5 to 6.5 feet in depth.

In the valley of the Williams River are numerous sources of gravel. The area represented by Identification Number 7 is a series of three large terraces containing excellent gravel and indicates a very large source of good material. Identification Numbers 8, 9 and 10 are in close proximity to the proposed line of the Interstate Highway. Identification Number 43 is a promising source, although the property owner is not willing to develop the area at this time. The only access to the area from the south is by means of a wooden covered bridge of limited capacity. Identification Number 41 indicates a large source of excellent material. However, the area is occupied by the Bellows Falls Country Club golf course. Consequently, the material is unavailable at this time.

Identification Numbers 22, 23, and 24 represent a large area of good gravel. The proposed relocation of Vt Route 103 runs through this area. The material contains some large stones and cobbles over 6", particularly in the area represented



by Identification Numbers 23 and 24, thus necessitating some crushing. Identification Number 22 is a large plateau with a level surface. Although samples taken from Test No. 1 and Test No. 4 contained insufficient stone for the abrasion test, it can be assumed that much of the material in this Identification Number 22 would be acceptable for sub-base of gravel, Item 201.

The valley of the Saxtons River contains several sources of acceptable gravel. Identification Number 28 consists of material which is quite variable in quality and stone size. Identification Number 30 is an excellent source of gravel, particularly at the lower level by the river. Apparently it is a fluvial deposit of large extent. Directly across the river is an extensive deposit of coarser river gravel.

Pleasant Valley, which runs north and south, thus connecting the valley of Saxtons River with that of Williams River, contains two small areas of granular material near its northern end. The sand in these areas, although of good quality, is limited to two small knolls.

Identification Number 4 proved to be a small shallow pit which, although not included in a specific area of granular material, contained some pebbly sand. However, the extent of the deposit is greatly limited by ledge. Identification Number 33 was sampled at the request of the property owner. It is a variable sand mixture with soft angular stones and quite small in extent. The area is inaccessible for large vehicles. Identification Number 34 is a small ridge stretching north and south. The material is generally unsorted drift. Although Test Number 5 in this Identification Number indicated material acceptable for sub-base of gravel, on inspection the material appeared to be dirty gravel with unsorted drift below four feet. Consequently, the area could not be considered a suitable source of acceptable material. Access to this area is by means of a covered wooden bridge of limited capacity.

### Glossary of Selected Geologic Terms

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

Fluvial--Pertaining to streams.

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

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

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

Lacustrine--Pertaining to lakes.

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

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

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

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

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

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

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

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

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

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

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

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ROCKINGHAM GRANULAR DATA SHEET NO. 1

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
1	1	1960	1-6	0-1	No		100.0	99.6	5.9	0.9	2½	--	Sand	Owner: Laitinen. Portion of a large sand area. Samples taken at edge of woods west of house. Permission not granted to dig in field along road. Test #1 contains sand with sand bottom. Acceptable for Item 202, sub-base of sand. Test #1A represents testing of this material by the Soils Lab. 100% passing #4 99.9 " #10 41.5 " #40 2.5 " #200 1.1 " #270 Soil type A-1-b. Acceptable for Item 102A, granular borrow. Test #2 taken 85' south of Test #1 at edge of woods. Sand with sand bottom. Acceptable for Item 202, sub-base of sand.
	1A	1960	1-6	0-1	No		--	See Remarks			--	--	--	
	2	1960	1-6	0-1	No		100.0	100.0	2.0	0.5	1	--	Sand	
2	1	1960	0-6	0	Yes		--	See Remarks			--	--	--	Owner: Durovich. In same sand area as Ident. #1. Test #1 taken in very small pit just south of telephone line east of house. Fine sand and

ROCKINGHAM GRANULAR DATA SHEET NO. 2

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	2	1960	0.5-6	0-0.5	No		100.0	73.6	7.3	1.0	1	--	Gran. Bor.	silt. Tested by Soils Lab. 100% passing 3/4" 99.8 " 3/8" 99.5 " #4 99.2 " #10 98.6 " #40 41.5 " #200 23.3 " #270 Soil type A-4. Failed for Item 102A, granular borrow. Test #2 taken 270' east of Test #1 and 60' north of telephone line. Gravelly sand with gravelly sand bottom.
	2A	1960	0.5-6	0-0.5	No		--	See	Remarks		--	--	--	Test 2A by Soils Lab. 100% passing 1 1/2" 97 " 1" 92.1 " 3/4" 81.8 " 3/8" 72.0 " #4 66.1 " #10 42.3 " #40 1.8 " #200 0.7 " #270 Soil type A-1-b. Acceptable for Item 102A, granular borrow.
	3	1960	0.5-7	0-0.5	No		--	See	Remarks		--	--	Gran. Bor.	Test #3 taken 370' east of Test #1 along telephone line. Gravelly sand. Sand mixed

ROCKINGHAM GRANULAR DATA SHEET NO. 3

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														with clay in bottom. Tested by Soils Lab. 100% passing 3/4" 97.6 " 3/8" 92.7 " #4 83.2 " #10 60.0 " #40 7.2 " #200 4.5 " #270 Soil type A-3. Accepted for Item 102A, granular borrow.
3	1	1960	0-7	None	No		84.6	67.8	6.0	1.0	2	--	Gran. Bor.	Owner: D. M. Willard. Test #1 130' east of US 5 and 60' north of pit. Sandy gravel with sandy gravel bottom. Material also tested by Soils Lab, as Test 1A. 100% passing 1 1/2" 95.3 " 3/4" 88.7 " 3/8" 80.7 " #4 68.6 " #10 31.8 " #40 1.4 " #200 0.7 " #270 Soil type A-1-b. Acceptable for granular borrow, Item 102A. Test #2 70' east of US 5 and 90' north of Test #1. Sand with sand bottom. Acceptable for Item 202, sub-base of sand.
	1A	1960	0-7	None	No		--	See Remarks			--	--		
	2	1960	1-7	0-1	No		100.0	86.8	3.6	0.4	2	--	Sand	

ROCKINGHAM GRANULAR DATA SHEET NO. 4

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	3	1960	0-14	0	Yes		100.0	90.7	16.3	1.8	1	--	Gran. Bor.	Test #3 taken in north face of small pit owned jointly by Willard and Blood. Too much material passing the #100 mesh to meet requirements for Item 202, sub-base of sand. Acceptable for Item 102A, granular borrow.
	4	1960	0-7	0	Yes		--	Not	Sampled		--	--	--	Test #4 taken in bottom of same pit as Test #3. Fine sand with some stones.
4	1	1960	1.5-10.5	0-1.5	Yes		--	See	Remarks		--	--	Gran. Bor.	Owner: F. Watson. Sampled west face of pit. Overburden stony. Material sampled contained fine sand alternating with bands of pebbly sand. Area small and limited by ledge on west and brook to east and north. Tested by Soils Lab. 100% passing 1" 99.5 " 3/4" 98.4 " 3/8" 97.2 " #4 95.2 " #10 87.0 " #40 11.0 " #200 4.5 " #270 Soil type A-2-4. Acceptable for Item



# ROCKINGHAM GRANULAR DATA SHEET NO. 5

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														102A, granular borrow.
5	1	1960	2-12	0-2	Yes		100.0	100.0	23.0	2.0	1	--	Gran. Bor.	Owner: Champagne. Sample taken on north face of small pit on east side of US 5. Meadow to north probably contains similar material but permission was not granted to dig in meadow. Fine sand becoming coarser with depth. Test #1 failed for Item 202, sub-base of sand, too much material passing #100. Material tested by Soils Lab, as Test #1A. 100% passing #10 92.6 " #40 8.6 " #200 3.2 " #270 Soil type A-3. Acceptable for Item 102A, granular borrow.
	1A	1960	2-12	0-2	Yes		--	See Remarks			--	--	--	
6	1	1960	5.5-9.5	0-5.5	No		81.6	57.9	8.0	3.0	2	24.8	Gravel	Owner: Dodge. Test #1 25' from bank of Connecticut River and 600' south of old pit. Overburden silt. Material sampled pebbly sand and gravel through bottom of hole. Acceptable for Item 201, sub-base of

## ROCKINGHAM GRANULAR DATA SHEET NO. 6

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	1A	1960	5.5-9.5	0-5.5	No		--	See	Remarks		--	--	--	gravel. Test 1A by Soils Lab. 100% passing 1½" 86 " 1" 83.5 " ¾" 76.8 " ⅜" 70.7 " #4 64.3 " #10 31.9 " #40 8.0 " #200 5.7 " #270
	2	1960	6.5-10.8	0-6.5	No		--	34.2	7.0	3.0	1½	24.6	Gravel	Soil type A-1-b. Test Test #2 185' north of Test #1 and 40' from river bank. Fine sand to silt overburden. Material sampled gravel with gravel bottom Acceptable for Item 201, sub-base of gravel.
	3	1960	3.5-11	0-3.5	No		--	60.7	3.0	3.0	2½	22.6	Gran. Bor.	Test #3 230' north of Test #2 and 60' from river bank. Alternating bands of sand and gravel. Fails on gradation--39.3% stone, 40.0% needed. Material tested by Soils Lab, as Test 3A.
	3A	1960	3.5-11	0-3.5	No		--	See	Remarks		--	--	--	100% passing 2" 89.8 " 1½" 84.7 " 1" 81.7 " ¾" 76.8 " ⅜" 70.5 " #4 57.2 " #10

ROCKINGHAM GRANULAR DATA SHEET NO. 7

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	4	1960	5.5-12.5	0-5.5	Yes		--	61.2	2.0	0.5	1	--	Gran. Bor.	23.4% passing #40 4.2 " #200 2.8 " #270 Soil type A-1-b. Accepted for Item 102A, granular borrow. Test #4 taken in south face of old pit 100' from river bank and 185' north of Test #3. Gravel with sand bottom. Failed for Item 201, sub-base of gravel--contains only 38.8% stone. Acceptable for Item 102A, granular borrow.
7	1	1960	2.5-10	0-2.5	No	31,817 (Total)	--	32.9	5.0	1.5	1	24.6	Gravel	Owner: Thomas E. Hanifin. This is a series of three kame terraces. Test #1 taken in the base of the first terrace. Gravel with sand bottom. Acceptable for Item 201, sub-base of gravel.
	2	1960	1-8	0-1	No		--	28.6	8.0	3.0	1 1/2	25.8	Gran. Bor.	Test #2 on second terrace. Gravel with gravel bottom. Fails on abrasion for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	3	1960	4-10	0-4	No		--	33.5	9.0	2.0	2	24.5	Gravel	Test #3 on second terrace 160' east of Test

ROCKINGHAM GRANULAR DATA SHEET NO. 8

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	4A	1960	2-7.5	0-2	No		100.0	95.9	34.6	11.0	2 1/2	--	Borrow	#2, 0-2' overburden, 2-4' sand, 4-10' gravel with gravel bottom. Acceptable for Item 201, sub-base of gravel. Test #4 150' north of Test #3. Sand over gravel with gravelly sand bottom. Test 4A represents sampling of sand portion. Material too fine for Item 202, sub-base of sand, and Item 102A, granular borrow. 11% passes #270 mesh.
	B	1960	7.5-11	--	No		--	47.2	13.0	2.0	1	19.4	Gravel	Test 4B represents sampling of gravel portion. Acceptable for Item 201, sub-base of gravel.
	5A	1960	1.5-11	0-1.5	No		--	42.5	3.0	1.5	1	23.2	Gravel	Test #5 on south end of third terrace just east of logging road. 1.5'-5' alternate bands of sand and gravel. 5-11' gravel. 11-12.5' fine sand. Test 5A represents sampling of gravel portion. Acceptable for Item 201, sub-base of gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 9

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#10	#4	#100	#270				
	5B	1960	11-12.5	--	No		100	96.4	22.1	2.1	1	--	Gran. Bor.	Test 5B represents sand portion of sample. Fails for Item 202, sub-base of sand. Has 22.1% passing, the #100 mesh. Acceptable for Item 102A, granular borrow.
	6A	1960	4.0-8	0-4	No		--	32.8	4.0	1.5	1	24.2	Gravel	Test #6 on third terrace north of curve in logging road. 0-2.5 overburden, 2.5-4.0 sand, 4-8 gravel, 8-10 fine sand. Test 6A represents gravel portion. Acceptable for Item 201, sub-base of gravel.
	6B	1960	8.0-10	--	No		96.0	86.4	20.9	3.0	1	--	Gran. Bor.	Test 6B sand portion. Fails for Item 202, sub-base of sand. Has 20.9% passing #100 mesh. Acceptable for Item 102A, granular borrow.
	7	1960	3-9.5	0-3	No		100	100	27.0	3.5	1	--	Gran. Bor.	Test #7 on fourth terrace 60' north of southern edge of terrace, 60' east of logging road. 0-1' overburden, 1-2' sand, 2-3' gravel, 3-9.5' sand. Fails for Item 202, sub-base of sand. Has 27% passing 100 mesh. Acceptable for Item 102A, granular borrow.

ROCKINGHAM GRANULAR DATA SHEET NO. 10

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	8	1960	2-8	0-2	No		--	40.5	5.0	2.0	2	27.2%	Gran. Bor.	Test #8 155' northeast of Test #5 and 45' from southern edge of third terrace. Gravel with gravel bottom. Fails for Item 201, sub-base of gravel. Has stone wear of 27.2%. Acceptable for Item 102A, granular borrow.
	9	1960	2-10	0-2	No		--	30.0	4.0	1.0	3½	21.2%	Gravel	Test #9 175' west of Test #5 and 55' north of southern edge of third terrace. Gravel with gravel bottom. Acceptable for Item 201, sub-base of gravel.
	10A	1960	2-7	0-2	No		--	28.6	3.0	1.0	3½	19.4%	Gravel	Test #10 200' west of Test #9. Test 10A acceptable for Item 201, sub-base of gravel.
	10B	1960	7-10	--	No		--	53.6	2.0	.75	2	18.4%	Gravel	Test #10B gravel with sandy gravel bottom. Acceptable for Item 201, sub-base of gravel.
	11	1960	2-8	0-2	No		--	27.3	3.0	0.5	2½	21.8%	Gravel	Test #11 150' north of Test #9 and 150' west of Test #6. 0-2' overburden, 2-4.5' gravel, 4.5-5.0' sand, 5-8' gravel, 8-9' fine sand with fine sand bottom. Acceptable for Item 201, sub-base of gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 11

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	12	1960	3-6.5	0-3	No		--	28.4	3.0	1.0	2	19.2%	Gravel	Test #12 150' north of Test #10 and 220' west of Test #11. 0-2' overburden, 2-3' sand, 3-6.5' gravel, 6.5-9.0' fine sand. Acceptable for Item 201, sub-base of gravel.
8	1	1960	0.5-4.5	0-0.5	Yes		--	21.1	6.0	1.5	2 1/2	17.2	Gravel	Owner: Thomas E. Hanifin. Test #1 in face of old pit. Will be obliterated by Interstate Highway. Gravel over fine sand with fine sand bottom. Gravel acceptable for Item 201, sub-base of gravel.
	2	1960	1.5-5	0-1.5	No		100	71.7	1.4	0.3	1	--	Gran. Bor.	Test #2 on terrace northeast of Test #1 on west side of old logging road. Sand with fine sand and silt bottom. Fails for Item 202, sub-base of sand. Has 71.7% passing #4 mesh. Acceptable for Item 102A, granular borrow.
	3	1960	0.5-7	0-0.5	No		--	See	Remarks		--	--	Gran. Bor.	Test #3 260' north of Test #2, 60' west of logging road. 0-0.5' overburden, 0.5-2.5' sand, 2.5-3.5' gravel, 3.5-7.0' sand, sand

ROCKINGHAM GRANULAR DATA SHEET NO. 12

Ident. No.	Field Test No.	Year Field Tested	Depth of Test or Sample (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#1 1/2"	#4	#100	#270				
														bottom. Sample tested by Soils Lab. 100% passing 2" 91.9 " 1 1/2" 91.9 " 1" 87.6 " 3/4" 82.8 " 3/8" 79.5 " #4 74.5 " #10 51.5 " #40 9.9 " #200 6.6 " #270 Acceptable for Item 102A, granular borrow.
9	1	1960	0.5-7	0-0.5	No		--	20.8	2.0	1.0	3	21.4%	Gravel	Owner: Thomas E. Hanifin. Test #1 80' west of pit under telephone line. Gravel with fine sand bottom. Acceptable for Item 201, sub-base of gravel.
	2A	1960	2.5-6	0-2.5	Yes		--	25.9	1.0	0.5	1	20.8%	Gravel	Test #2 in east face of pit east of road. 0-2.5' overburden, 2.5-6.0' gravel, 6.0-9.5' sand, sand bottom. Test 2A represents gravel portion of sample. Acceptable for Item 201, sub-base of gravel.
	2B	1960	6-9.5	--	Yes		100	98.8	13.8	0.9	1	--	Sand	Test 2B represents sand portion of sample. Acceptable for Item 202, sub-base of sand.



ROCKINGHAM GRANULAR DATA SHEET NO. 13

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#1	#4	#100	#270				
10	1	1960	1.5-8	0-1.5	No		100	95.4	1.9	0.5	1½	--	Sand	Owner: Thomas E. Hanifin. Test #1 275' southeast of point where telephone cable crosses Interstate Highway. Sand with sand bottom. Acceptable for Item 202, sub-base of sand. Test #2 175' south on logging road from point where telephone cable crosses road. 0-1.5' overburden, 1.5-5.0' sand, 5-8' fine sand. Test 2A fails for Item 202, sub-base of sand. Has 80.1% passing #4 mesh. Acceptable for Item 102A, granular borrow. Test 2B fails for Item 202, sub-base of sand. Has 25% passing #100 mesh. Acceptable for Item 102A, granular borrow. Test #3 0.2 mile south of Test #2 along logging road. Sand with sand bottom. Fails for Item 202, sub-base of sand. Has 83.7% passing #4 mesh. Acceptable for Item 102A, granular borrow.
	2A	1960	1.5-5	0-1.5	No		100	80.1	0.8	0.4	3½	--	Gran. Bor.	
	2B	1960	5-8	--	No		100	100	25	1.8	1	--	Gran. Bor.	
	3	1960	2-8.5	0-2	No		100	83.7	2.5	1.0	2	--	Gran. Bor.	

ROCKINGHAM GRANULAR DATA SHEET NO. 14

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
11	1	1960	0-8	0	No		100	91.5	8.2	1.0	1 1/2	--	Sand	Owner: Emerson Kennedy A small sand terrace. Test #1 on south edge of terrace 175' from US 5. Sand with sand bottom. Acceptable for Item 202, sub-base of sand. Test #2 100' north of Test #1. Sand with very fine wet sand bottom. Acceptable for Item 202, sub-base of sand.
	2	1960	0-8	0	No		100	96.0	10.6	1.0	1	--	Sand	
12	1	1960	0.5-7	0-0.5	No	9,317 (Total)	100	70.7	0.7	0.1	1	--	Gran. Bor.	Owner: H. A. Stoddard. Test #1 on top of a small knoll 75' north of the town road. Contains gravelly sand with gravelly sand bottom. Fails for Item 202, sub-base of sand. Has 70.7% passing the #4 mesh. Acceptable for Item 102A, granular borrow. Test #2 100' east of Test #1 and 55' north of town road. Sandy gravel with sandy gravel bottom. Has a 1' layer of coarse angular stone at depth of 2.5'. Fails for Item 201, sub-base of gravel. Has stone wear
	2	1960	0.6-9.5	0-0.6	No		--	43.2	4.0	0.5	1	29.8	Gran. Bor.	

ROCKINGHAM GRANULAR DATA SHEET NO. 15

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over- Burden (ft)	Exist- ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	3	1960	1.5-10.5	0-1.5	No		--	32.7	3.0	1.0	1	22	Gravel	of 29.8%. Acceptable for Item 102A, granular borrow. Test #3 240' north of town road on edge of terrace near woods. 0-1.5' overburden, 1.5-3.5' gravel, 3.5-5.5' sand, 5.5-10.5' gravel. Acceptable for Item 201, sub-base of gravel.
	4	1960	2-8.5	0-2	No		--	27	2	0.5	2	22	Gravel	Test #4 165' southeast of Test #3 and 30' from edge of terrace. Gravel with gravel bottom. 0-2' overburden, 2-3' gravel, 3-4' sand, 4-8.5' gravel. Acceptable for Item 201, sub-base of gravel.
	5	1960	0.5-7	0-0.5	No		--	26.1	3	0.75	3	20.2	Gravel	Test #5 215' southeast of Test #4, 20' west of edge of terrace. 0-0.5 overburden, 0.5-7 gravel, 7-8 sand, bottom sand and possible ledge. Acceptable for Item 201, sub-base of gravel.
	6	1960	1.5-9	0-1.5	No		--	24.5	4	1	1½	26.2	Gran. Bor.	Test #6 on southeast end of lower terrace 70' from base of next terrace and 30' from end. Gravel with gravel bottom. Water at

# ROCKINGHAM GRANULAR DATA SHEET NO. 16

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	7	1960	4-7	0-1.5	No		--	51	8	2	2	28.8	Gran. Bor.	9'. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow. Test #7 300' northwest of Test #6 75' from end of terrace. 0-1.5' overburden, 1.5-4 sand, 4-7 gravel, 7-9 fine sand. Bottom sand and water. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
13	1A	1960	2-5	0-2	No		--	43.2	4	1.3	1½	28.6	Gran. Bor.	Owner: Furgot. Test #1 450' east of barn on north edge of terrace. 0-2' overburden, 2-5' gravel, 5-10' sand with stones. Test 1A fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	1B	1960	5-10	--	No		84.5	49.1	0.9	0.3	1½	--	Gran. Bor.	Test 1B fails for Item 202, sub-base of sand. Has 84.5% passing 1½" mesh. Acceptable for Item 102A, granular borrow.
	2	1960	3-9	0-3	Yes		100	79.4	2.3	0.8	1½	--	Gran. Bor.	Test #2 in south face of pit 300' east of Test #1 and 160' from

ROCKINGHAM GRANULAR DATA SHEET NO. 17

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	3	1960	0.5-7	0-0.5	Yes		100	93.3	2.8	0.5	1	--	Sand	west end of pit. 0-3' overburden, 3-9' sand with stone, 9-10' flat stones, 10-12' fine white sand. Fails for Item 202, sub-base of sand. Has 79.4% passing #4 mesh. Acceptable for Item 102A, granular borrow. Test #3 in center of floor of pit. Sand with sand bottom. Acceptable for Item 202, sub-base of sand.
14	1	1960	1-11.5	0-1	Yes		76.3	53.3	1	0.5	1	--	Gran. Bor.	Owner: P. Brown (formerly Currier). 0-1' overburden, 1-4' gravel, 4-7.5' sand, 7.5-9' coarse gravel, 9-11.5' sand, 11.5-13' fine sand. Test #1 fails for Item 202, sub-base of sand. Acceptable for Item 102A granular borrow.
	2	1960	1-6	0-1	No		--	Not	Sampled		--	--	--	Test #2 100' southeast of edge of pit. Very fine wet sand through bottom. Not sampled.
15	1	1960	0.5-7	0-0.5	No		--	35.6	4	1	1½	18.6	Gravel	Owner: Sableski. Test #1 in center of field on slight bank. Excellent gravel acceptable for Item 201, sub-base of gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 18

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-8	0-1	No		100	80.6	3.2	1	1	--	Gran. Bor.	Test #2 200' east of Test #1 and 70' south of edge of woods. Peb- bly sand through bot- tom. Fails for Item 202, sub-base of sand. Has 80.6% passing #4 mesh. Acceptable for Item 102A, granular borrow.
	3	1960	1-7.5	0-1	No		91.3	69.9	1.3	0.3	1½	--	Gran. Bor.	Test #3 350' west of Test #1 and 100' south of edge of woods. Sand with stones through bottom. Fails for Item 202, sub-base of sand. Has 91.3% passing 1½" mesh. Acceptable for Item 102A granular bor- row.
16	1	1960	0.5-9.5	0-0.5	No		--	26.4	4	1	2	24	Gravel	Owner: Mario Rovetti. Test #1 85' west of gate and 85' south of edge of field. Good gravel with some stone stones near maximum size. Gravel bottom. Acceptable for Item 201, sub-base of gra- vel.
	2	1960	0.5-9.5	0-0.5	No		--	18.6	8	3	1½	22.8	Gravel	Test #2 185' south of Test #1 and 100' from east and west edges of field. Gravel over fine wet sand. Accept- able for Item 201, sub-base of gravel

ROCKINGHAM GRANULAR DATA SHEET NO. 19

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	3	1960	1-4.5	0-1	No		--	20.1	4	1	1½	26	Gran. Bor.	Test #3 190' south of Test #2 near fence on east side of field. Gravel over fine sand. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	4	1960	1-7	0-1	No		--	27.2	5	1.3	3	19	Gravel	Test #4 400' west of gate and 70' south of edge of field. Gravel with fine sand bottom. Acceptable for Item 201, sub-base of gravel.
	5	1960	1-8	0-1	No		--	30.5	7	2	3½	24.8	Gravel	Test #5 300' west of Test #4 and 110' from north edge of field. Gravel over fine sand. Acceptable for Item 201, sub-base of gravel.
	6	1960	2.5-7	0-2.5	No		--	36.6	7	2	2½	35.6	Gran. Bor.	Test #6 300' west of Test #5 and 110' from north edge of field. Gravel with fine wet sand bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
17	1	1960	1.5-6.5	0-1.5	No	21,748 (Total)	--	28.3	10	3	2	37.6	Gran. Bor.	Owner: Miss E. Woodford. Test #1 865' east of barn near

ROCKINGHAM GRANULAR DATA SHEET NO. 20

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1.5-9	0-1.5	No		--	32.4	9	3	3	17.8	Gravel	<p>south edge of terrace. Gravel with fine sand bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow. Test #2 375' west of Test #1 near edge of terrace. 0-1.5 overburden, 1.5-4.5 gravel 4.5-6.5 sand, 6.5-9.5 gravel through bottom. Acceptable for Item 201, sub-base of gravel.</p>
	3	1960	1-9	0-1	No		--	20.2	12	6	3½	23	Gran. Bor.	<p>Test #3 85' east of barn and 18' from edge of terrace. Gravel with gravel bottom. Rejected for Item 201, sub-base of gravel. Has 6% passing #270 mesh. Acceptable for Item 102A, granular borrow.</p>
	4A	1960	1-7	0-1	No		--	38.1	6	0.5	3	18	Gravel	<p>Test #4 15' from north edge of field behind Test #2. 0-1' overburden, 1-7' gravel, 7-9' fine sand through bottom. Test 4A acceptable for Item 201, sub-base of gravel.</p>
	4B	1960	7-9	--	No		--	See	Remarks		--	--	--	<p>Test 4B tested by Soils Lab. Unsuitable for Item 102A, granular borrow or Item</p>



ROCKINGHAM GRANULAR DATA SHEET NO. 21

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														102, borrow. 100% passing #40 57.3 " #200 29.3 " #270
18	1	1960	1-3	0-1	No		--	Not	Sampled		--	--	--	Owner: Miss E. Woodford. Test #1 in south east corner of field 50' from edges. Till with large stones. Test #2 395' north of Test #1 and 55' from east edge of field. Till with large stones. Test #3 245' west of Test #1 and 15' from edge of field. Till with large stones. Test #4 200' northwest of Test #3 in middle of kettle hole depression. Sample tested by Soils Lab. 100% passing 2" 92.5 " 1 1/2" 88 " 1" 86.6 " 3/4" 83.4 " 3/8" 78.5 " #4 71.9 " #10 57.6 " #40 24 " #200 12.9 " #270 Acceptable for Item 102, borrow.
	2	1960	1-3.5	0-1	No		--	Not	Sampled		--	--	--	
	3	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	
	4	1960	1.5-7	0-1.5	No		--	See	Remarks		--	--	Borrow	

ROCKINGHAM GRANULAR DATA SHEET NO. 22

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
19	1A	1960	0.5-9	0-0.5	Yes		--	22.5	4	1	1	24.4	Gravel	Owner: W. L. Smith. Pit nearly depleted. Test #1 in west end of narrow ridge which is only source of material remaining. 0-0.5' overburden, 0.5-9' gravel, 9-15.5 sand, and silt, 15.5-24' gravel through bottom. Test 1A acceptable for Item 201, sub-base of gravel. Test 1B sand and silt. Tested by Soils Lab. 100% passing 3/4" 99.4 " 3/8" 99.2 " #4 99.0 " #10 98.0 " #40 28.6 " #200 22.3 " #270 Test 1C gravel. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	1B	1960	9-15.5	--	Yes		--	See Remarks			--	--	--	
	1C	1960	15.5-24	--	Yes		--	40	5	1.75	1	26.6	Gran. Bor.	
20	1A	1960	1-5	0-1	No	13,659 (Total)	--	58.1	2	0.5	1	15.6	Gravel	Owner: C. E. Clark. Test #1 near east end of terrace. 0-1' overburden, 1-5' sandy gravel, 5-10.5' sand, 10.5-11' fine sand through bottom. Test #1A acceptable for

ROCKINGHAM GRANULAR DATA SHEET NO. 23

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	1B	1960	5-10.5	--	No		--	See	Remarks		--	--	Gran. Bor.	Item 201, sub-base of gravel. Test #1B tested by Soils Lab. 100% passing 3/4" 96.6 " 3/8" 93.7 " #4 89.4 " #10 37.7 " #40 0.6 " #200 0.3 " #270 Acceptable for Item 102A, granular borrow.
	1C	1960	5-10.5	--	No		90	81	0.8	0.8	1	--	Gran. Bor.	Test #1C same material as Test #1B. Although Test #1B indicates the material might be a possible source of Item 202, sub-base of sand. Test #1C disagrees with this result and should be given most credit. Fails for Item 202, sub-base of sand. Has 81% passing #4 mesh. Acceptable for Item 102A, granular borrow.
	1D	1960	10.5-11	--	No		--	See	Remarks		--	--	Gran. Bor.	Test #1D fine sand through bottom. 100% passing #10 99.4 " #40 83.5 " #200 75.9 " #270 Fails for Item 102A, granular borrow, and Item 102, borrow. Tested by Soils Lab.

ROCKINGHAM GRANULAR DATA SHEET NO. 24

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-10.5	0-1	No		--	27.6	6	2.5	3½	30%	Gran. Bor.	Test #2 280' southwest of Test #1 and 5' from edge of terrace. Gravel with gravel bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	3A	1960	0.5-3	0-0.5	No		--	29.1	8	3	2	26%	Gran. Bor.	Test #3 145' northwest of Test #2 and 60' from stone wall. 0.5-3' gravel, 3-9' sand. Test #3A fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	3B	1960	3-9	--	No		100	100	3	0.5	1	--	Sand	Test #3B acceptable for Item 202, sub-base of sand.
	4	1960	1-10.5	0-1	No		--	30.9	4	1.5	2	21.4%	Gravel	Test #4 280' west of Test #2 on edge of terrace. Gravel with gravel bottom. Acceptable for Item 201, sub-base of gravel.
21	1	1960	1-8	0-1	No		--	22.6	9	1	3	23.6%	Gravel	Owner: Mario Rovetti. Test #1 800' north of Vt Route 103 and 150' southwest of apple tree on fence line. Gravel with water at 8'. Acceptable for Item 201, sub-base of gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 25

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-10	0-1	No		--	21.8	16	10.5	3	23.4%	Borrow	Test #2 200' west of Test #1 and 10' from edge of terrace. Gravel with gravel bottom. Fails for Item 201, sub-base of gravel. Has 16% passing 100 mesh. Fails for Item 102A, granular borrow. Has 10.5% passing 270 mesh. Acceptable for Item 102, borrow.
	3	1960	1-8	0-1	No		--	22	14	8.25	2	25.2%	Gran. Bor.	Test #3 150' west of Test #2 and 10' from edge of terrace. Gravel with gravel bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	4	1960	0.5-6	0-0.5	No		--	26.5	13	4.8	3½	30.2	Gran. Bor.	Test #4 275' north of Vt Route 103 and 350' south of twin pine tree. Just east of old pits. Gravel with clay bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
22	1	1960	0.5-9.5	0-0.5	No		--	28.8	2	0.5	1	--	--	Owner: Town Poor Farm. Test #1 300' north of edge of bank and 55' west of woods. Gravel

ROCKINGHAM GRANULAR DATA SHEET NO. 26

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#10	#4	#100	#270				
	2	1960	3-10	0-1	No		--	31.3	12.0	2.8	2	18.8	Gravel	with gravel bottom. 0-0.5' overburden, 0.5-6' sand with a few stones, 6-9.5' gravel with large cobbles. Insufficient stone in sample for wear test. Possible source of crushed gravel. Test #2 350' west of Test #1 on centerline of proposed Vt 103 at Station 449+00. 0-1' overburden, 1-3' fine sand, 3-7.5' gravel with stones up to 1.0' 7.5-9' fine sand, 9-10' gravel. Sampled 3-10'. Acceptable for Item 204, sub-base of gravel.
	3	1960	1-9.5	0-1	No		--	38.3	3.0	0.5	1.5	19.6	Gravel	Test #3 500' north of Test #2 on centerline of proposed Vt 103 at Station 454+00. 0-1' overburden, 1-5' gravel, 5-6' sand, 6-9.5' gravel. Acceptable for Item 201, sub-base of gravel.
	4	1960	1-10	0-1	No		--	39.3	2	0.75	1	--	--	Test #4 700' northeast of Test #3, 60' west of edge of woods, 120' north of wooded depression and 40' east of small depression. 0-1' overburden, 1-2' large

## ROCKINGHAM GRANULAR DATA SHEET NO. 27

nt. o.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over- Burden (ft)	Exist- ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	5	1960	1-8	0-1	No		95.9	88.3	0.8	0.3	2	--	Gran. Bor.	cobbles, 2-3' sand, 3-4.5' gravel, 4.5-6.5' sand, 6.5-10' gravel. Not enough stone in sample for abrasion test. Test #5 900' northwest of Test #4 on centerline of proposed Vt 103 at Station 459+00. 0-1' overburden, 1-8' sand with stones, 8-9' sand with boulders over 6". Acceptable for Item 102A, granular borrow.
13	1	1960	1.5-9.5	0-1.5	No		--	37.3	2.0	0.5	3	17	Gravel	Owner: Town Poor Farm. Test #1 on knoll 50' left of Station 466+50 of proposed Vt 103. Very coarse material--boulders up to 2'. 0-1.5' overburden, 1.5-6.5' gravel with boulders over 6", 6.5-9' gravel with stones. Acceptable for Item 201, sub-base of gravel.
	2	1960	1.5-8	0-1.5	No		--	38.7	4	1.25	5	23.4	Gravel	Test #2 50' right of Station 470+00 of proposed Vt 103. Gravelly sand with large boulders. Poorly sorted. Although the sample indicated poor color,

ROCKINGHAM GRANULAR DATA SHEET NO. 28

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														the material should be considered acceptable for Item 201, sub-base of gravel.
24	1	1960	1-10	0-1	No		--	24.2	5	1.5	2	18.2%	18.2	Owner: Town Poor Farm. Test #1 in east end of depression opposite old pit. Gravel with cobbles over 6". Contains too much large stone for Item 201, sub-base of gravel. Could be used as a source of crushed gravel.
25	1	1960	0-8	0	Yes		100	100	13	0.8	1	--	Sand	Owner: A. Fisher. Test #1 in old very small pit northeast of barn. Limited area of sand with sand bottom. Acceptable for Item 202, sub-base of sand.
	2	1960	0.5-10	0-0.5	No		--	56.2	6	0.75	1	31.8%	Gran. Bor.	Test #2 on knoll south of Test #1. Sandy gravel through bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	3	1960	1-6	0-1	No		--	42.3	5	1.25	1 1/2	39%	Gran. Bor.	Test #3 on south end of ridge on west side of road behind house, 100' north of farm road. Mixed layers of



ROCKINGHAM GRANULAR DATA SHEET NO. 29

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	4	1960	1-7	0-1	No		--	45	6	2.25	3	37.4%	Gran. Bor.	sand and gravel thorough bottom. Fails on wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow. Test #4 30' south of stone wall on north end of same ridge as Test #3. Mixed layers of sand and gravel thorough bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	5	1960	1-20	0-1	Yes		100	71.7	0.7	0.3	1	--	Gran. Bor.	Test #5 in south face of pit south of farm road. Sand with narrow layers of clean stone. Fails for Item 202, sub-base of sand. Has only 71.7% passing #4 mesh. Acceptable for Item 102A, granular borrow.
26	1	1960	1-9	0-1	No		100	93.3	12.1	1	1	--	Sand	Owner: Moch. Test #1 185' east of town road opposite Moch home. Layers of fine and coarse sand with some large stones. Acceptable for Item 202, sub-base of sand.

ROCKINGHAM GRANULAR DATA SHEET NO. 30

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	0.5-4.5	0-0.5	Yes		--	34.3	34	16	1	28.2%	Borrow	Test #2 in bottom of small pit 52' east of Test #1. Gravel with sand bottom. Fails for both Item 201, sub-base of gravel, and Item 102A, granular borrow. Has 16% passing #270 mesh. Acceptable for Item 102, borrow.
27	1	1960	1-7.5	0-1	No		100	84.7	3.4	0.6	1	--	Gran. Bor.	Owner: C. B. Kelton. Test #1 on top of sand knoll. Contains stones over 1½". Fails for Item 202, sub-base of sand. Acceptable for Item 102A, granular borrow.
	2	1960	1-5	0-1	No		--	Not	Sampled		--	--	--	Test #2 15' from edge of terrace south of Test #1. Unsorted drift with many large cobbles.
	3	1960	1-6.5	0-1	No		--	Not	Sampled		--	--	--	Test #3 at edge of terrace southeast of dump. Wet fine sand with large boulders. Ledge bottom.
28	1	1960	1-6	0-1	No		--	39.7	4	1.3	2	30.2%	Gran. Bor.	Owner: C. B. Kelton. Test #1 near west end of field next to field road. Many large stones. Gravel with gravel bottom. Fails

ROCKINGHAM GRANULAR DATA SHEET NO. 31

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	2	1960	1-5.5	0-1	No		--	See	Remarks		--	--	Gran. Bor.	on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow. Test #2 .16 mile eastward along farm road from Test #1. Sand and silt in layers with narrow bands of clean stones. Ledge or boulders at bottom. Tested by Soils Lab. 100% passing 1½" 98.4 " 1" 96.9 " 3/4" 91.9 " 3/8" 86.1 " #4 80.3 " #10 60.2 " #40 7.4 " #200 4.3 " #270 Acceptable for Item 102A, granular borrow. Soil type A-3.
	3	1960	1-4	0-1	No		--	26.5	6	1.8	3½	20%	Gravel	Test #3 200' north of Test #2 and 150' south of Vt Route 121. Gravel and sand with boulder in bottom. Acceptable for Item 201, sub-base of gravel.
29	1	1960	0-9.5	0	Yes		--	See	Remarks		--	--	Gran. Bor.	Owner: Macke. Test #1 in north face of pit. Sand with stones. Ledge or boulder in

ROCKINGHAM GRANULAR DATA SHEET NO. 32

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
														bottom. Tested by Soils Lab. 100% passing 1½" 98.3 " 1" 94.9 " ¾" 90.5 " ⅜" 83.3 " #4 71.6 " #10 36.6 " #40 5.3 " #200 3.4 " #270 Soil type A-1-b. Acceptable for Item 102A granular borrow.
30	1	1960	0.5-6	0-0.5	No		--	30.8	4	1.5	2½	15.8%	Gravel	Owner: Bresnahan. Test #1 125' south of dump and 100' from Saxtons River. Gravel with large stones. Water in bottom. Acceptable for Item 201, sub-base of gravel.
	2	1960	2-4.5	0-2	No		--	25.8	3	1.3	3½	16.2%	Gravel	Test #2 185' east of Test #1 in woods. Gravel. Water at 3'. Some stones over 6" in bottom. Acceptable for Item 201, sub-base of gravel.
	3	1960	2-4.5	0-2	No		--	37.4	7	1.5	3½	14.2%	Gravel	Test #3 225' east of Test #2 and 100' from river. Gravel with some stones over 6". Water at 3.5'. Acceptable for Item 201, Sub-base of gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 33

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	4	1960	1-8	0-1	No		--	28.4	3	1	3½	22%	Gravel	Test #4 on edge of upper terrace southeast of old pit. Large numbers of stones 6"-12". Acceptable for Item 201, sub-base of gravel.
	5	1960	1-3	0-1	No		--	Not Sampled			--	--	--	Test #5 205' east of Test #4 at edge of terrace. Till with stones.
	6	1960	4-10	0-4	No		--	35.1	22	0.5	3	28.6%	Gran. Bor.	Test #6 125' southwest of barn and 15' from edge of terrace. Gravel over sandy gravel. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
31	1	1960	4.5-10	0-4.5	No		--	40.6	4	2.3	1½	29.8%	Gran. Bor.	Owner: Breshahan. Test #1 at west end of field. 0-1' overburden, 1-4.5' silty sand, 4.5' thin band very fine sand, 4.5-10' gravel. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	2	1960	4-8.5	0-4	No		--	Not Sampled			--	--	--	Test #2 300' east of Test #1. 0-1' overburden, 1-4' silty sand, 4-8.5' dirty gravel.

ROCKINGHAM GRANULAR DATA SHEET NO. 34

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	3	1960	4-6	0-4	No		--	Not	Sampled		--	--	--	Water at 7'. Test #3 300' east of Test #2. 0-1' overbur- den, 1-4' fine sand, 4-6' dirty gravel, water at 4'.
32	1	1960	1-8.5	0-1	No		--	See	Remarks		--	--	Gran. Bor.	Owner: Richardson. Test #1 125' east of town road. Silty sand with some stone. 100% passing 1 1/2" 98.1 " 1" 95.0 " 3/4" 87.3 " 3/8" 76.2 " #4 64.1 " #10 39.3 " #40 9.1 " #200 5.3 " #270 Soil type A-1-b. Ac- ceptable for Item 102/
	2	1960	1-3	0-1	No		--	Not	Sampled		--	--	--	Granular borrow. Test #2 345' north of Test #1 and 200' east of town road. Till through bottom.
33	1	1960	1-9	0-1	No		--	See	Remarks		--	--	Gran. Bor.	Owner: Ralph Emerson. Fine to coarse sand mixture with soft ang- ular stones. Fine sand bottom. 100% passing 2" 93.3 " 1 1/2" 88.9 " 1" 85.6 " 3/4"

ROCKINGHAM GRANULAR DATA SHEET NO. 35

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														77.3% passing 3/8" 69.2 " #4 60.1 " #10 39.9 " #40 7.0 " #200 4.1 " #270 Soil type A-1-b. Acceptable for Item 102 granular borrow. Area inaccessible.
34	1	1960	0.5-4	0-0.5	No		--	Not	Sampled		--	--	--	Owner: H. Rhoades. Test #1 at northern end of ridge. Unsorted drift.
	2	1960	1-4	0-1	No		--	See	Remarks		--	--	--	Test #2 200' south of Test #1. Unsorted drift. Tested by Soil Lab. 100% passing 1 1/2" 97.1 " 1" 97.1 " 3/4" 91.1 " 3/8" 88.6 " #4 84.8 " #10 68.3 " #40 43.6 " #200 39.6 " #270 Soil type A-4. Fails for Item 102A, granular borrow, and Item 102, borrow.
	3	1960	1-5.5	0-1	No		--	Not	Sampled		--	--	--	Test #3 200' south of Test #2. Unsorted drift.

ROCKINGHAM GRANULAR DATA SHEET NO. 36

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	4	1960	1-4	0-1	No		--	Not	Sampled		--	--	--	Test #4 150' south of Test #3. Unsorted drift.
	5	1960	1.5-4	0-1.5	No		--	38.6	10	3.5	2	19.6%	Gravel	Test #5 150' south of Test #4 just east of old pit. Dirty gravel, unsorted drift on bottom. Acceptable for Item 201, sub-base of gravel.
	6	1960	1-6	0-1	No		--	Not	Sampled		--	--	--	Test #6 150' south of Test #5. Unsorted drift.
35	1	1960	0-6	0	Yes		92.2	72.8	1.5	0.5	1	--	Gran. Bor.	Owner: Torrey. Test #1 in floor of pit. Clear sand with stone. Fails for Item 202, sub-base of sand. Has only 92.2% passing 1½" mesh
	2	1960	2-9	0-2	No		--	29.6	4	2	2½	26.4%	Gran. Bor.	Test #2 at edge of field northwest of pit. Gravel through bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	3	1960	1.5-13	0-1.5	Yes		--	30.6	6	2.5	1	34.4%	Gran. Bor.	Test #3 in south face of pit, gravel. Fails on stone wear for Item 201, sub-base of gravel, acceptable for Item 102A, granular borrow.



ROCKINGHAM GRANULAR DATA SHEET NO. 37

dent. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over- Burden (ft)	Exist- ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#10	#40	#100	#200				
36	1A	1960	18-19	--	Yes		--	See	Remarks		--	--	Gran. Bor.	Owner: Arnold Noyes. Test #1 in northwest face of pit. 0-1' over burden, 1-12' gravel, 12-13' sand, 13-18' gravel, 18-19' fine sand. Test #1A by Soils Lab. 100% passing #10 99.3 " #40 4.2 " #200 1.5 " #270 Soil Type A-3. Accept- able for granular bor- row, Item 102A.
	1B	1960	1-18	0-1	Yes		--	29.7	4	1.5	1	33.8%	Gran. Bor.	Test #1B gravel with fine sand bottom. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granu- lar borrow.
	2A	1960	0-6	0	Yes		--	38.9	4	.75	1	24%	Gravel	Test #2 in bottom of pit 60' east of Test #1. Test 2A acceptable for Item 201, sub-base of gravel.
	2B	1960	6-10	--	Yes		100	100	17	1.3	1	--	Gran. Bor.	Test 2B fails for Item 202, sub-base of sand. Has 17% passing #100 mesh. Acceptable for Item 102A, granular borrow.
	3	1960	1-9	0-1	No		--	44.4	11	2.3	1	28.6%	Gran. Bor.	Test #3 60' south of stone wall and 40' from southern extrem- ity of terrace. Fails

ROCKINGHAM GRANULAR DATA SHEET NO. 38

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1½"	#4	#100	#270				
	4	1960	1.5-5	0-1.5	Yes		100	88.1	0.8	0.4	2½	--	Sand	on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow. Test #4 in small sand pit on west side of field. Limited area over ledge. Acceptable for Item 202, sub-base of sand.
	5	1960	1-9	0-1	No		100	76.4	3.8	0.8	3	--	Gran. Bor.	Test #5 on north edge of field. Sand with stone. Water at 9'. Fails for Item 202, sub-base of sand. Has 76.4% passing #4 mesh. Acceptable for Item 102A, granular borrow.
37	1	1960	2-8	0-2	No		100	85.3	2.4	0.4	2	--	Sand	Owner: Frank Mark. Test #1 sand through bottom 150' from north edge of field. Acceptable for Item 202, sub-base of sand.
	2	1960	0-2	0	No		--	Not Sampled			--	--	--	Test #2 at north edge of field. Unsorted drift near ledge.
	3A	1960	3.5-8.5	--	No		--	49.3	3	0.5	3	24.6%	Gravel	Test #3 125' west of Test #1 and 22.5' east of intersection of telephone line with edge of field. Sand over gravel plunging to east. Test 3A gravel through bottom.

ROCKINGHAM GRANULAR DATA SHEET NO. 39

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#14"	#4	#100	#270				
	3B	1960	0.5-3.5	0-0.5	No		100	96.9	2.7	0.9	1	--	Sand	Acceptable for Item 201, sub-base of gravel. Test 3B sand over gravel. Acceptable for Item 202, sub-base of sand.
	4	1960	0.5-7	0-0.5	No		--	42.1	3	1	3½	20.0%	Gravel	Test #4 400' southwest of Test #3. Gravel through bottom. Acceptable for Item 201, sub base of gravel.
	5	1960	0.5-7	0-0.5	No		100	98.1	19.6	4.9	2	--	Gran. Bor.	Test #5 250' east of west edge of field and 50' from south edge. Sand through bottom. Fails for Item 202, sub-base of sand. Has 19.6% passing #100 mesh. Acceptable for Item 102A, granular borrow.
	6	1960	1.5-8	0-1.5	No		--	32.3	3	1	3½	24.4%	Gravel	Test #6 100' south of old quarry east of field. Gravel through bottom. Acceptable for Item 201, sub-base of gravel.
38	1	1960	0.5-8.5	0-0.5	No		100	80.8	18.5	4.7	2	--	Gran. Bor.	Owner: Raymond Paul. Test #1 200' northwest of house. Varying layers of dirty sand, clean sand, very fine sand and silt. Bedrock bottom. Fails for Item 202, sub-base of sand

ROCKINGHAM GRANULAR DATA SHEET NO. 40

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Exist-ing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Specs.	Remarks
							#10	#4	#100	#270				
	2	1960	1-7	0-1	No		100	73.3	8.6	1.4	3	--	Gran. Bor.	Has 80.8% passing #4 mesh. Acceptable for Item 102A, granular borrow. Test #2 150' southeast of Test #1 and 50' from house. Dirty sand with flat soft stones. Water at 6'. Fails for Item 202, sub-base of sand. Has 73.3% passing #4 mesh. Acceptable for Item 102A, granular borrow.
39	1	1960	1-9	0-1	No		--	32.5	11	3	3	32%	Gran. Bor.	Owner: William J. Mair Test #1 95' south of power pole and 100' west of ledge. Bony gravel through bottom. Water at 8'. Fails on stone wear for Item 201, sub-base of gravel. Acceptable for Item 102A, granular borrow.
	2	1960	1-9	0-1	No		--	19.9	13	6	3	22.8%	Gran. Bor.	Test #2 125' south of Test #1. Bony gravel through bottom. Fails for Item 201, sub-base of gravel. Has 6% passing #270 mesh. Acceptable for Item 102A, granular borrow.
	3	1960	1-8	0-1	No		--	32.7	4	1	5	29.4%	Gran. Bor.	Test #3 270' south of Test #2 and 90' southwest of rock ledge.

ROCKINGHAM GRANULAR DATA SHEET NO. 41

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHTO T-21	Abrasion AASHTO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
														Bony gravel through bottom. Fails on stone wear for Item 201, sub base of gravel. Acceptable for Item 102A, granular borrow.
40	1A	1960	0.5-7	0-0.5	No		75.2	60.7	6.9	2.7	3	--	Gran. Bor.	Owner: Guy Ellison. Test #1 70' south of edge of field and 100' southwest of clump of ash trees by stone wall. Sand with stone. Fine sand bottom. Test #1A submitted to Highway Testing Lab. Fails for Item 202, sub-base of sand. Has 75.2% passing 1 1/2" mesh. Acceptable for Item 102A, granular borrow. Sample submitted to Soils Lab as Test #1B.
	1B	1960	0.5-7	0-0.5	No		--	See	Remarks		--	--	Gran. Bor.	100% passing 1 1/2" 87.9 " 1" 83.3 " 3/4" 74.9 " 3/8" 68.5 " #4 61.5 " #10 33.3 " #40 2.7 " #200 1.6 " #270 Soil type A-1-b. Acceptable for Item 102, granular borrow.

ROCKINGHAM GRANULAR DATA SHEET NO. 42

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							#1/2"	#4	#100	#270				
	2	1960	0.5-4	0-0.5	No		--	50.8	5	1	3	20%	Gravel	Test #2 on knoll 600' south of Test #1. Gravel with many large stones, some over 6". Sand with large stones in bottom. Acceptable for Item 201, sub-base of gravel.
	3	1960	1-9.5	0-1	No		--	54.2	17	3	3	25.4%	Gran. Bor.	Test #3 300' south of Test #2. Fails for Item 201, sub-base of gravel. Has 17% passing #100 mesh. Acceptable for Item 102A, granular borrow.
41	1	1960	0.5-4	0-0.5	No		--	42.9	2	1	3	18.6%	Gravel	Owner: Bellows Falls Country Club. Test #1 may represent a large area under the golf course. Acceptable for Item 201, sub-base of gravel.
42	1A	1960	0-12	0	Yes		100	100	58	9	0	--	Gran. Bor.	Owner: Whitcomb. Test #1 in bottom of gully running through pit. Test 1A tested by Highway Testing Lab. Fails for Item 202, sub-base of sand. Has 58% passing #100 mesh. Acceptable for Item 102A, granular borrow.
	1B	1960	0-12	0	Yes		--	See	Remarks		--	--	Gran. Bor.	Test #1B same hole as Test #1A. Sample sent to Soils Lab.

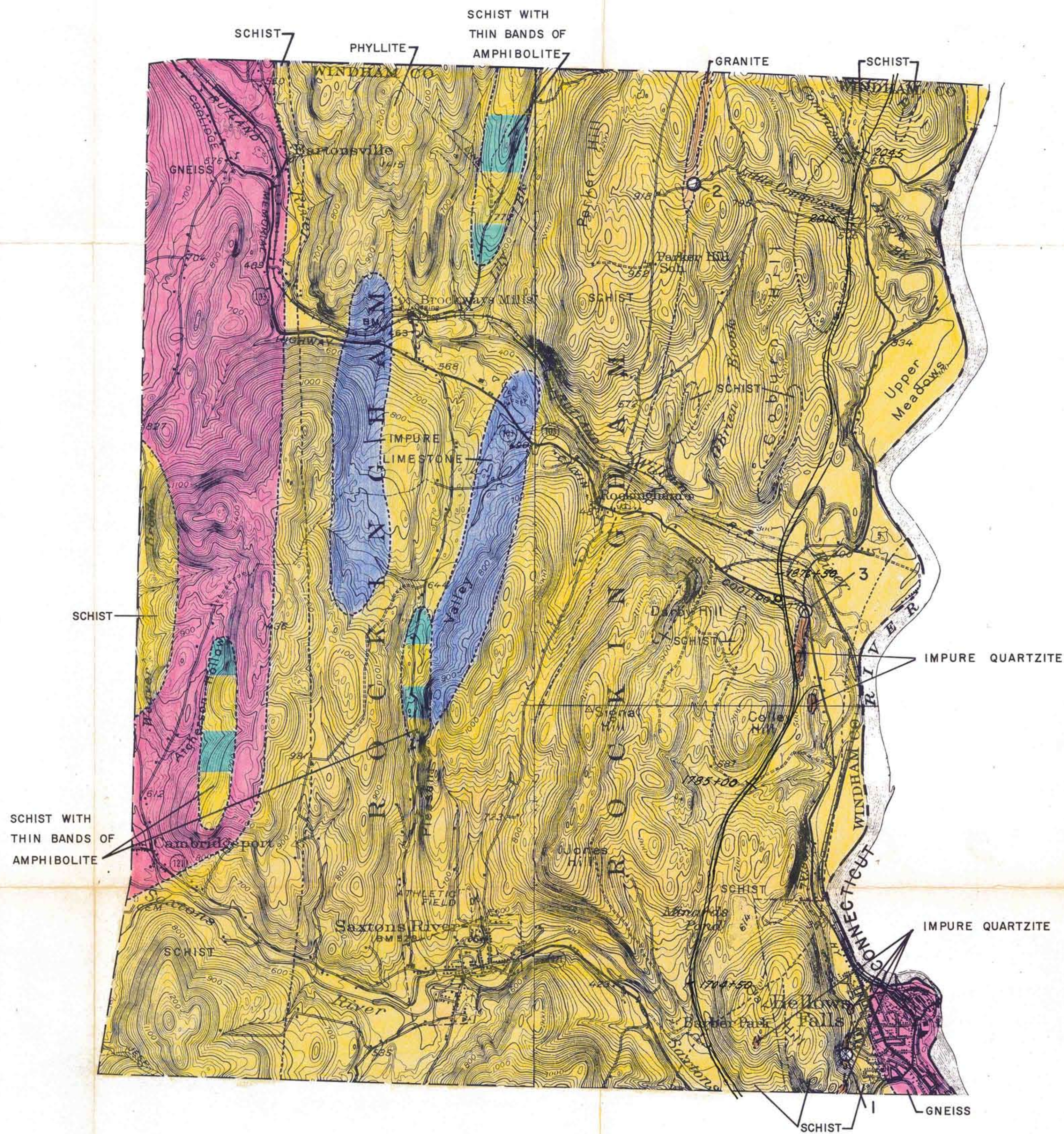
ROCKINGHAM GRANULAR DATA SHEET NO. 43

Ident. No.	Field Test No.	Year Field Tested	Depth of Sample or Test (ft)	Over-Burden (ft)	Existing Pit	Volume Estimate (cu. yds)	Sieve Analysis % Passing				Color AASHO T-21	Abrasion AASHO T-4-35	Passes VHD Specs.	Remarks
							1 1/2"	#4	#100	#270				
	2	1960	0-12	0	Yes		100	96	4.8	1.2	1	--	Sand	100% passing #10 99.7 " #40 17.7 " #200 8.5 " #270 Soil type A-2-4. Acceptable for Item 102A granular borrow. Test #2 taken in stock pile. Acceptable for Item 202, sub-base of sand.
43	1	1960	1-3	0-1	Yes		--	49.8	3	0.75	1 1/2	17.8%	Gravel	Owner: J. B. Abbott. Test #1 in north face of pit. Gravel extends under meadow to north. Owner does not wish to extend pit under meadow. Acceptable for Item 201, sub-base of gravel.

# ROCKINGHAM ROCK DATA SHEET NO. 1

Ident. No.	Field Test No.	Year Field Tested	Rock Type	Existing Quarry	Method of Sampling	Abrasion AASHO T-3	Distance Between Samples (ft)	Remarks
1	1	1960	Quartzite	Yes	Chip	3.2	--	Owner: Bellows Falls Village Quarry. Interbedded bands of impure quartzite. A small quarry approximately 50' wide with 50' vertical face. Apparently large quantity of material available. Residential area nearby.
2	1	1960	Granite	No	Chip	2.6	--	Owners: Joseph and Stanley Gelewsky, E. W. Small, MacBeth. This is a fairly large granite body extending north from the town road into Springfield. The southern extremity, in which Test #1 was taken, consists of a series of small, elongated outcrops. None of these small outcrops showed any appreciable width.
3	1	1960	Quartzite & Quartz Conglomerate	No	Chip	4.2	--	Owner: Davignon. A 50' wide band of quartzite and quartz conglomerate dipping to the west, bounded on both sides by schist.

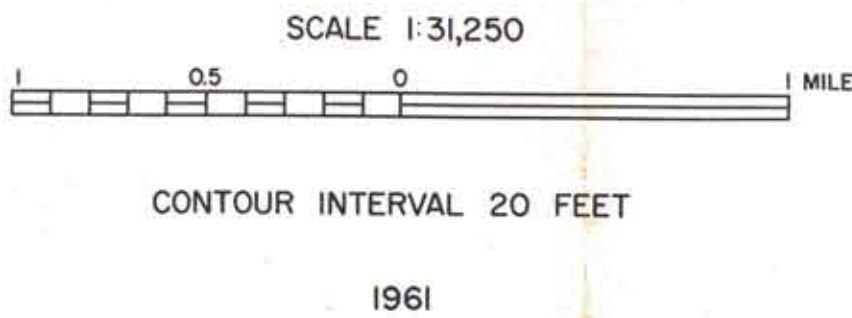




LEGEND

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

ROCKINGHAM



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					

ROCK

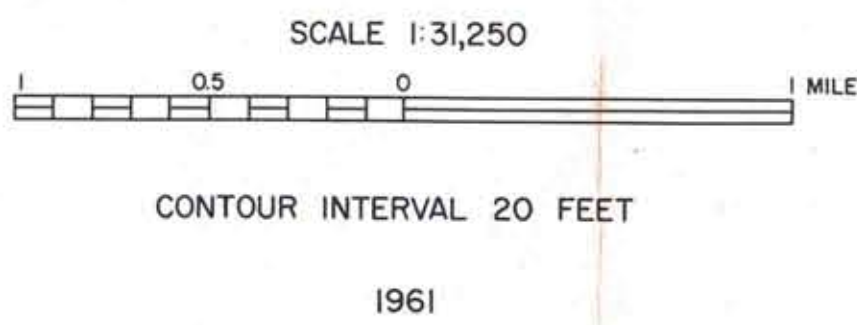




LEGEND

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

ROCKINGHAM



GRANULAR

MATERIALS MAP

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

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

DATE					
BY					